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The Relationship of Social Skills to Psychopathology for Individuals With Mild and Moderate Mental Retardation.

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**THE RELATIONSHIP OF SOCIAL SKILLS
TO PSYCHOPATHOLOGY FOR INDIVIDUALS WITH
MILD AND MODERATE MENTAL RETARDATION**

A Dissertation

**Submitted to the Graduate Faculty of
Louisiana State University and
Agriculture and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy**

in

The Department of Psychology

**by
Stephen Joseph Anderson
B.A., The University of Tennessee, 1980
M.A., Louisiana State University, 1994
December, 1998**

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DEDICATION

I didn't realize until grad school what remarkable parents I had, and what a rare family with which I have been blessed .

This work is dedicated to Frank Havens Anderson. In 1989, I was going nowhere in life, just paying off accumulated debt and mulling over the possibility of returning to school. He said, "Stephen, I can see that you're not happy with your direction in life. I want to pay off your debts and give you the chance to go back to school and get some additional training to do something you are proud of." This he did.

During my time in graduate school, he has fought cancer, as well as the debilitating effects of radiation, chemotherapy, and bad physicians. He has shown himself to be as strong and determined physically as he has always been mentally and spiritually. My admiration and love for him, already great, have grown as I have watched him age with grace. He has grappled with all that life could throw at him, and held on through the dark night. He has shown me what a father's love really is. This work is dedicated to him with love in thanks for the opportunity and for the love.

This work is further dedicated to Martha Shahan Anderson. Thanks, mom, for the love, the many prayers, the example of your fighting to the end and never losing hope. I miss you, and wish I'd had the opportunity to know you as an adult.

This work is also dedicated to Jesus Christ, for his suffering and dying for my sins, and the sins of the whole world. Thank You, Lord.

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ABSTRACT

Recent advances in the field of mental retardation have included the development of instruments for assessment of both psychopathology and social skills in individuals with mental retardation. Researchers have subsequently begun investigating relationships between between psychopathology and social skills in individuals with mental retardation. Initial studies have focused on persons with severe and profound mental retardation. The present study examined the relationship between psychopathology and social skills in individuals with mild and moderate mental retardation. This investigation used the Assessment for Dual Diagnosis (ADD) to measure psychopathology and the Social Performance Survey Schedule (SPSS) to evaluate social skills. Significant differences were observed between groups that were high or low in symptoms of psychopathology. Group patterns of social skills, items which significantly differentiate the groups, and future research implications are discussed.

INTRODUCTION

The field of mental retardation has been the subject of much misunderstanding and social apprehension in the past 100 years (Goddard, 1928; Kanner, 1948, 1964). Persons with mental retardation have been vilified, feared, blamed for many of society's problems, institutionalized, sterilized, and generally treated as something less than human (Goddard, 1920, 1921; Kanner, 1964; Trent, 1994).

Mental retardation has been called by many names. Yet, a hallmark of mental retardation has always been a below average ability to learn and function in the social milieu (Duncan & Millard, 1866; Doll, 1941; Tredgold & Soddy, 1963; Grossman, 1983). This decreased social functioning is perhaps the principle challenge which service providers must address in working with persons with developmental disabilities. Researchers in the field of social skills training have over the past 40 years developed effective techniques to address many of these social deficits. Through application of behavioral technology researchers have demonstrated that persons with mental retardation can make significant improvements in community and interpersonal functioning (Matson, 1982; Matson, DiLorenzo, & Andrasik, 1982; Dosen, 1993).

In the early years of this century it was thought that persons with mental retardation and mental illness comprised two distinct, non-overlapping groups (Reiss, 1994). It is now recognized that individuals with mental retardation evince the full range of psychopathology, at higher frequencies than seen in the general population (McLean, 1993; Borthwick-Duffy, 1994). Individuals with both mental retardation and mental illness are said to be dually diagnosed (Matson & Sevin, 1994). The presence of psychopathology in persons with mental retardation creates additional challenges to community integration and interpersonal adjustment.

The normalization movement began in the early 1970's (Nirje, 1969; Wolfensburger, 1980), and has been the impetus for widespread community placement for persons with mental retardation. A primary reason that persons with mental retardation fail in the normalized social milieu has been the presence of maladaptive social behavior (Matson, 1982; Matson & Hammer, 1996). It is now recognized that when such maladaptive behavior is reflective of mental illness that treatments must address the person's mental health needs as well as the need for social skills training.

Yet, recognizing and appropriately diagnosing mental illness in persons with mental retardation presents many challenges. Psychometrically sound measures for assessment of symptoms of mental illness in the developmentally delayed population have been developed only recently (Matson, 1997; Matson, Gardner, Coe, & Sovner, 1991). These measures have permitted investigations into the relationship between psychopathology and social skills in persons with severe and profound mental retardation (Matson, Smiroldo & Bamburg, 1998; Duncan, 1997). The current investigation was designed to examine the relationship of psychopathology and social skills in persons with mild and moderate mental retardation.

The present work first addresses historical definition of mental retardation and traces development to the present. It then examines the dual diagnosis literature, including prevalence and methods of assessing psychopathology in persons with mental retardation. Third is a discussion of social skills, including definitions, and assessment of social skills in persons with mild and moderate mental retardation. Fourth will come the rationale for the current study, followed by method, results, and discussion.

MENTAL RETARDATION

Development of Terminology

It has become customary in reviewing past definitions of mental retardation to begin with either Heber (1959, 1961) or Grossman (1973, 1977, or 1983). These definitions are significant as they represent attempts to standardize terminology and create a consistent language for professional communication in the field of mental retardation. Recent social trends and attempts to both shift the accepted definition and to re-shape thinking relative to disabilities in the U. S. (Luckasson, Coulter, Polloway, Reiss, Schalock, Snell, Spitalnik, and Stark, et al., 1992) warrant a re-examination of historical trends in the definition of mental retardation.

For this reason, the present work addresses historical definitions of mental retardation in more detail. It is hoped that the historical sense of conflict and confusion that has characterized the field will be only too clear. Unfortunately, an exhaustive review of the field is not possible within this context; thus, the current work attempts to be representative of efforts in the psychological literature to define mental retardation.

Numerous sources trace the history of mental retardation to antiquity (Kanner, 1964; Scheerenberger, 1982). Early identification of MR relied on the presence of physical anomalies. Thus, when institutions for persons with MR developed in the middle 19th century, they were administrated by physicians (Trent, 1994). The field of medicine has held sway in administering the field of mental retardation for much of the past 150 years, and has only recently taken a less prominent role in defining mental retardation. This lessened role has followed the gradual realization that medical etiology, while important to individual care, is generally not prognostic of treatment of the particulars of mental retardation (Luckasson et al., 1992; Editorial Board, 1996).

Clearly the forerunner of modern treatment of persons with mental retardation was Itard, who worked from 1800-1805 with Victor, the wild boy of Aveyron. Though Itard felt that his work failed, he demonstrated that persons with seemingly severe disabilities could learn. Though 10 cases of such 'wild' children had been documented by Linnaeus from 1544 to 1767, no effort had been made to address these children's learning problems (Haines, 1930).

Regarding definitions of mental retardation, Wilmarth (1906) suggested that "It would not seem, at first view, that it would be

necessary to discuss this subject further at this late period of the work." Strauss (1939) pointed out that "the literature on the question of typology in mental deficiency is so abundant that it is not possible to mention even a majority of investigators and their contributions." Kuhlman (1941) added that "Scientific literature offers few instances if any, in which a given field or object has been so frequently or so variously described." Yepsen (1949) pointed out that though many definitions had been proffered, little real difference separated them. Yet, it appears that agreement was more common in the more severe cases than in milder or borderline cases. "People who work with mental defectives have a sufficiently common understanding regarding the lower levels of deficiency that there is little confusion in communication or in taking action regarding individuals in this group" (McCulloch, 1947, p. 130).

Two schools of thought emerged following the development of the Binet scales. One favored rigorous psychometric standards determined by 'mental tests'. The other preferred a definition emphasizing social functioning. Referring to the Mental Age derived from the Binet intelligence test, Twitmyer (1927) commented, "The intelligence quotient savors of mathematical accuracy, and yet in all essential respects it is nothing beyond a

descriptive or qualitative diagnosis and yields little if any contribution toward the solution of the problem presented by the individual mental deficient.”

Incurability

Doll (1947) makes an extensive evaluation of available data indicating cases of mental retardation which have been “cured”. What is typically found among reported ‘cures’ is poor diagnostics that turn out to have been mistaken. Though some have reported cures (Muench, 1944), Doll points out that there is no data to suggest that such a cure has taken place, or that such a cure is likely to take place. He suggests that amelioration is possible, but cure unlikely. “Although we know of no instances where bona fide cures have been effected, we know of many instances where the early diagnosis was mistaken” (Doll, 1947, p. 424).

Confusion of Terminology

Terminology has always differed in the U. S. and England. In England, the terms “feeble-minded”, “idiot”, and “imbecile” corresponded roughly to today’s mild, moderate, and severe mental retardation. In the U. S., terminology did not reflect level of deficiency; the term “feeble-minded” was applied to all persons with mental deficiency. Persons at the borderline of normality– feeble mindedness were in the U. S. referred to as “morons”

(Goddard, 1928). Moronity corresponded to an IQ range of 70-85 based on Binet scores, and was considered to represent the upper range of mental deficiency. The range of persons considered “morons” in the U. S. corresponded roughly to persons called “dullards” in England. Dullards were not considered mentally deficient, but occupied the lowest social strata of normal individuals (Tredgold, 1947).

Difficulties in discussing earlier definitions stem primarily from the use of language that does not fully correspond to today’s common usage. Thus, terms such as “feeble-minded, idiot, imbecile”, formerly had specific meanings but now constitute terms of insult.

For as long as there have been terms to refer to mental retardation, individuals have voiced concern about the pejorative nature of the terminology. Duncan and Millard (1866, p. 2) comment that the word idiot “has too often been used as a term of ridicule... and that very distinctive term ‘simpleton’ has become so decidedly connected with reproach that it is better to omit it and substitute ‘feeble-minded.’”

Since that time, all terms utilized to describe persons with mental retardation have become “decidedly connected with reproach.” The same argument is made by Soddy regarding use of

the terms idiot, imbecile, and feeble-minded. "These terms were in general use for years, and generally understood. But...it has been said that the terms carry a stigma, and so induce contempt or perhaps horror in public opinion" (Tredgold & Soddy, 1963).

"It is true of course that the term 'idiot' is used as a term of abuse, not only by children, and its change of use in this way is a philological curiosity. The original Greek word *idios* (ιδιος) meant, and still does mean, a private person. Unfortunately, changing names does not in itself abolish stigma—as the change from 'lunatic asylum' to 'mental hospital' has shown" (Tredgold & Soddy, 1963, page 2).

Terminology has been changed when it reaches colloquial status as a term of insult. The problem which appears unappreciated by social reformers and "advocates" is simple. Any word that refers to people who differ from the norm (in any way) will become pejorative. It matters not if the children who get off the little school bus are called "blue meanies"; eventually, this parlance will evoke anger, frustration, and bitterness in some usage with some individuals. Changing the words does not change the condition which the words signify (James, 1910), and it is this condition which evokes the stigma— not the 'bad words'. Luckasson et al. (1992) seek to avoid stigma by changing

terminology. The behaviorist might argue that change can most readily result from increasing the functioning level of those who carry the label. In this way normalization can lead to maximal performance in the world for persons with disability.

Confusion over the many overlapping terms such as “feebleminded, mentally defective, backward, retarded, atypical,” led in the early 1930’s to another call for a standardization of terminology. The White House Conference on Child Health and Protection addressed this problem and recommended inflexible guidelines for the condition (Frankel, 1937; Ellis, 1933). Unfortunately, such guidelines remained elusive. Confusion often resulted from attempts to determine an individual’s level of disability, as there was often some overlap. “The transit from class to class is so gradual that it is often difficult to determine where one class ends and another begins (Nowrey, 1945). Nevertheless, Conley (1985) points out that “Simply put, a mildly mentally retarded person is more similar to a “normal” person than to a person who is severely retarded” [p. 195].

Definitions of Mental Retardation

An accurate appraisal of the current definition of mental retardation is only possible in light of the overall development of terminology in the field. Thus, a review of the development of

terminology will be conducted. Due to limitations of space, this review will be representative rather than exhaustive.

Duncan and Millard (1866) proposed a typology with 8 classes, of which 1 through 4 correspond with current levels of mild-moderate-severe- profound. Classes 5-8 include individuals whose disability is attributed to medical causes: epilepsy, hydrocephalus, head injury, or some disease entity which occurs during infancy or youth. They comment with remarkable perspicacity "the proposed classification must be simple and practical, although it cannot have as yet the stamp of scientific truth, for the data... are not yet sufficiently known" (p. 2).

Tredgold (1947) distinguished two classes of "aments" (persons with mental deficiency), the mentally defective and the mentally deficient. He defined a mentally defective person as one in whom innate potential is so limited that, regardless of education or training, they cannot achieve the necessary adaptation for independent survival. He defined mental deficiency or amnesia as a state of either restricted potential or arrested cerebral development such that at maturity the person is incapable of adapting to the environment or the requirements of the community sufficiently to maintain independent existence without supervision or external supports. Aments were persons who had

not attained expected levels of functioning; these were contrasted with Dements, persons who suffered from decline in function from previously attained levels.

Tredgold (1947, p. 1) stated that "Mental deficiency or amentia, then, is a condition in which mind has failed to reach normal or complete development". He rejected both educational and IQ-based criteria for mental deficiency, proposing that social criteria alone define the condition. "The essential purpose of mind is that of enabling the individual to so adapt himself to the environment as to maintain an independent existence." Tredgold added that permanence was also a defining feature of mental deficiency.

This definition is similar to England's Mental Deficiency Act of 1927, which stated: "mental defectiveness means a condition of arrested or incomplete development of mind existing before the age of eighteen years, whether arising from inherent causes or induced by disease or injury." The Act, however, made no condition of permanence for diagnosis of mental deficiency. It recognized three levels of deficiency: Idiots were defined as "persons in whose case there exists mental defectiveness to such a degree that they are unable to guard themselves against common physical dangers." Imbeciles are "persons in whose case there exists mental

defectiveness, which, though not amounting to idiocy, is yet so pronounced that they are incapable of managing themselves or their affairs, or, in the case of children, of being taught to do so.” Imbeciles were “persons in whose case there exists mental defectiveness which, though not amounting to imbecility, is yet so pronounced that they require care, supervision, and control for their protection, or the protection of others, or in the case of children, that they appear to be permanently incapable by reason of defectiveness of receiving proper benefit from the instruction in ordinary schools.

The American Association for the Study of the Feeble-minded (later the American Association for Mental Deficiency, then the American Association on Mental Retardation) in 1910 informally adopted a classification system based solely on intellectual test results. Persons with a mental age of less than 3 years were designated as idiots; those with mental age between 3 and 7 inclusive were designated as imbeciles; and persons with mental ages from 8 to 12 were designated morons. This system was formally adopted in 1920 (Goddard, 1921).

Standards adopted jointly by the National Committee on Mental Hygiene and the American Association for the Feeble-Minded in 1921 defined mental deficiency by Binet mental age. An

idiot was defined as an individual whose mental age was 35 months or below, or a child whose IQ was less than 25. An imbecile is one whose mental age was from 36-83 months, or a child whose IQ was from 25-49. Morons were those whose mental age was from 84-143 months, or if a child, one whose IQ fell between 50 and 74. By today's standards, this would be referred to as the first "official" definition of the AAMR.

Goddard (1928) re-examined the 1920 classification accepted by the American Association for the Study of the Feeble-minded. He pointed out that

it was easy to agree to call the lowest group "idiots" with a mentality up to and including two years; and the next group "imbeciles", with mentality of from 3 to 7 inclusive. It was the next group which gave us the trouble. Our first thought was to call them "feeble-minded" in a specific sense after the custom of the English, but when we realized that practically every institution in the United States was called "an institution for the feeble-minded" meaning everything from idiocy to the highest grade, we realized the impossibility of limiting the term "Feeble-minded" to any one group. Accordingly we decided to call the highest group "morons". Consequently the definition of "moron" is: a feeble-minded person with a mentality of anywhere from 8 to 12 years (p. 220).

Goddard (1928) added that the figure of 12 years resulted from testing of individuals in several institutions that showed the highest intelligence among residents to be 12 years. Thus, it was assumed that anyone testing at 12 years or below was

feeble-minded. It was nearly 20 years before the mistake was clarified. Goddard pointed out that while those considered idiots and imbeciles were unquestionably feeble-minded, some persons in the moron class were feeble-minded, while most were not. "Our old explanation seems still the best—the result is due to other factors than intelligence. These factors coupled with the low intelligence turn the tide one way or the other" (Goddard, 1928, p. 222). Goddard proposed that persons previously classified as idiots or imbeciles be referred to as "mental defectives" or "mental cripples." These lower functioning persons were universally seen as feeble-minded (McCulloch, 1947). The term "moron" would be retained, "but with the distinct connotation that they are *not* hopeless and incurable mental defectives...but capable of becoming, in a limited way, regular members of the social group" (Goddard, 1928, p. 226).

Lewis (1933) classified persons with feeble-mindedness into two broad divisions: subcultural and pathological. The subcultural (later called cultural-familial) mental defectives were of normal appearance and tended to come from socially inferior homes. The pathological group consisted of individuals with organic lesions or known (medical) abnormalities. He considered the lower group to be a normal fluctuation of human genetics.

Doll (1935) championed the traditional definition of mental deficiency as social incompetence due to arrested mental development. He pointed out that the recent trend of labeling as 'mentally deficient' both persons who are intellectually subnormal and those who are feeble-minded further complicated the problem of defining mental deficiency. Doll suggested that the defining feature of mental deficiency is social incompetence, and proposed his social maturity scale as an appropriate measure of the construct.

In his presidential address to the AAMD the following year, Doll (1936) questioned whether mental deficiency can be distinguished from normality. He argued that low intelligence was not sufficient for the diagnosis of mental deficiency; one also needed social inadequacy and arrested development. He lauded the Binet scale as an adequate measure of intelligence, and pointed out that the scale does not allow the distinction between high-grade feeble-minded and low-grade normal. He proposed that researchers should first identify the level of social competence which differentiated feeble-mindedness from normality, then identify which mental age and IQ limits corresponded to these scores. This problem (the presumption that there was a dividing line separating normality from mental deficiency) has plagued

researchers both before and since. An IQ score that would correspond to the upper limit of mental deficiency and to the lower limit of normality could be likened to psychology's search for the holy grail.

Perhaps paradoxically, Doll (1936) then stated that mental deficiency should be defined socially. Thus, the idiot cannot protect himself from ordinary dangers, has very limited power of communication, cannot provide for his ordinary wants, and needs constant supervision and assistance. The imbecile can sense ordinary dangers, attend to most wants, and is capable of a "fair degree of speech", but is nonetheless "incapable of communication by reading or writing, cannot perform any but the simplest work even under supervision, and is quite incapable of getting along on his own" (Doll, 1936, p. 38).

The moron, on the other hand, succeeds beyond the imbecile's social limits: that is, he may achieve a limited degree of literacy, but this rarely extends beyond the fourth grade; he may learn to perform unskilled industrial tasks and even some slightly skilled tasks, but rarely exceeds the common labor or apprentice level of trade, factory, or mechanized work; he may under favorable circumstances and with only limited supervision succeed socially at a low level, but is incapable of adapting himself in unusual situations which require original thinking, or of earning a living for long on his own, or of supporting a family with more than marginal success (Doll, 1936, p. 38).

Medical contributions to definitions of mental retardation have been common. Humphrey (1936) referred to "the field of developmental deficiency is a branch of medicine devoted to the study and treatment of developmental deficiencies which may appear in various combinations in the physical, intellectual and social aspects of the organism, with a tendency in all cases toward reduced social efficiency." Lurie's (1946) medical concept of feeble-mindedness was less understanding toward use of social and intellectual inadequacy in defining feeble-mindedness. He pointed out that feeble-mindedness is not a homogeneous state, but a symptom of an underlying somatic condition, a "constitutional disturbance". This disturbance is either hereditary or acquired. He suggested abandoning the term "feeble-minded" in order to distinguish between forms that are remediable versus those that are not. Lurie (1946) made no suggestions for alternate terminology, and his work is representative of much medical thinking on the subject in this time frame.

Sukov stated that "The impossibility of setting an immutable dividing point between the normal and mental defectives is conceded" (Sukov, 1939, p. 185). In discussing the difficulties inherent in working with mentally deficient offenders, he proposed a change from IQ 70 to a cutoff of IQ 60, below which persons

would be considered mentally deficient. This would prevent the then-common use of the insanity defense (Sukov, 1939).

Kuhlman (1941) proposed simply that "mental deficiency is a mental condition resulting from a subnormal rate of development of some or all mental functions (p. 213). Yepsen (1941) considered the four essential features of mental deficiency to be (1) ineffective integration; (2) tendency to react on an affective, not a cognitive level; (3) perseverative tendencies in action; and (4) disacuity in discerning relationships which are elemental.

Kanner (1948) proposed a 'pragmatic' grouping of absolute versus relative feeble-mindedness. Absolute feeble-mindedness

consists of individuals so markedly deficient in their cognitive, affective, and constructively conative potentialities that they would stand out as defectives in any existing civilization. They are designated as idiots and imbeciles. They would be equally helpless and ill-adapted in a society of savants and in a society of savages. They are not only deficient intellectually but deficient in every sphere of mentation. They are the truly, absolutely, irreversible feeble-minded or mentally deficient in every sense of the word. The most carefully planned therapeutic and educational efforts will not succeed in helping them to function self-dependently, without the need for protecting supervision. They continue throughout their lives in need of custodial care, the custody being carried on by relatives or in appropriate institutions. (Kanner, 1948, p. 373).

Limitations in relative feeble-mindedness are related primarily to the standards of the surrounding society (McCulloch,

1947). In a rural or agrarian society, persons with relative feeble-mindedness might find distinction by assets "other than those measured by intelligence tests" (Kanner, 1948, p. 374). However, in popular society, these individuals "appear as soon as scholastic criteria demand competition" (Kanner, 1948, p. 374). Kanner suggested that these persons are not truly *mentally* deficient, but rather that they are *intellectually* deficient.

Kanner further suggested a category of "apparent feeble-mindedness or pseudo-feeble-mindedness". This group consisted of persons whose test results appear to be limited, but whose results improve when the cause of the problem is removed. Some causes mentioned include difficulties in vision, hearing, learning disability, negativism, emotional blocking, seizures, medication effects, or schizophrenic withdrawal. A more complete listing of factors leading to mis-diagnosis can be found in Arthur (1947).

Kanner also proposed the use of the "personal profile", adapted from Fernald, consisting of a summary of genetic, cultural, material, physical, educational, and emotional determinants of disability in each individual client. He further stated that "the surest road to the patient leads not through the

broad highway of diagnostic classification but through the narrow path of individual personality study" (Kanner, 1948, p. 376).

Piaget and Inhelder (1947) argued against use of the term "mental age", stating that mental age did not correspond to any natural phase of mental development. They suggested that imbecility corresponded to a child who fails to progress beyond the first stage of operational construction and cannot discern conservation of matter, weight, or volume. Progressing to the second or third stage yields an individual who is feebleminded; these are characterized by never reaching the stage of formal operations.

The Diagnostic and Statistical Manual of Mental Disorders (DSM; APA, 1952) classified Mental Deficiency under two headings: Mental Deficiency and Chronic Brain Syndrome with Mental Deficiency. Under mental deficiency, three categories were specified. Mild mental deficiency referred to functional (vocational) impairment, and corresponded to the IQ range 70-85. Moderate mental deficiency applied to "functional impairment requiring special training and guidance... as would be expected with IQs of about 50-70" (APA, 1952, p. 24). Severe mental deficiency referred to "functional impairment requiring custodial or complete protective care, as would be expected with IQs below 50"

(APA, 1952, p. 24). Chronic brain syndrome was applied to cases identified as organically based, with the same specifiers regarding level of deficit.

Heber (1959) formulated the 5th edition of the definition of (what was now called) mental retardation for the American Association on Mental Deficiency. It stated that "Mental retardation refers to subaverage general intellectual functioning which originates during the developmental period and is associated with impairment in one or more of the following: (1) Maturation, (2) Learning, and (3) Social adjustment". A notable change was that "subaverage" referred to scores greater than 1 standard deviation below the mean on measures of intellectual functioning. This standard had previously been utilized in the Diagnostic and Statistical Manual (APA, 1952). The developmental period was defined to be "approximately 16 years". The three areas of impairment were intended to reflect the manifestation of mental retardation at different ages. Impairment in maturation is evident in infancy and early childhood. Impairment in learning becomes evident during schooling, while impairment in social adjustment becomes apparent when one is expected to fulfill normal social roles in adulthood. The definition referred to an individual's current functioning; therefore, we find the first phrase indicating

that the condition may not persist. Thus, “an individual may meet the criteria for mental retardation at one time and not at another” (Heber, 1959, p. 4).

Heber (1959) stated that mental retardation consisted of measured intelligence corresponding to departures of greater than 1 Standard Deviation (SD) below the mean on a standardized test of intellectual functioning. Intellectual level was defined as Level V (-1.01 to 2 SD), IV (-2.01 to 3 SD), III (-3.01 to 4 SD), II (-4.01 to 5 SD), or I (-5 or more SD). A comparable system of recording deficits in adaptive functioning was provided, with levels of deficit 4 (-1.01 to -2.25 SD below mean on standardized measures of adaptive functioning), 3 (-2.26 to -3.5 SD), 2 (-3.51 to -4.75 SD), and 1 (-4.76 or more SD). Yet, no adequate measures of adaptive behavior were identified for clinical use. The manual recognized that criteria for adequate adaptive behavior vary by age, and that clinical judgment was necessary in assessing adaptive behavior. Thus, the call for standardized assessment of adaptive behavior was at best optimistic.

Heber (1961) modified the definition to read “Mental retardation refers to subaverage general intellectual functioning which originates during the developmental period and is associated with impairment *in adaptive behavior*” (*italics added*). He stated

that “Adaptive behavior refers primarily to the effectiveness of the individual in adapting to the natural and social demands of his environment. Impaired adaptive behavior may be reflected in: (1) maturation, (2) learning, and/or (3) social adjustment” (Heber, 1961, p. 3). This subtle definitional change served to widen the interpretation of what constituted “adaptive behavior”. The traditional terms borderline, mild, moderate, severe, and profound replaced the levels V-I due to popular opposition to this usage.

The fifth revision (Heber, 1959, 1961) was an attempt to increase uniformity in terminology and classification incorporating both behavioral and medical aspects to classification.

Significantly, the manual states that it strives to be interdisciplinary in nature and to “distinguish mental retardation from *other* disorders of behavior” (Heber, 1959, p. vii, italics added). The manual also contained sections on medical and behavioral classification and on statistical reporting. However, changing to one standard deviation below the mean increased the percentage of the population that could be classified as mentally deficient from roughly 2% to 15%!

At roughly the same time as Heber was proposing changes, Perry (1960) published a classification based solely on IQ. This grouping retained borderline cases, and unfortunately classified as

severe (IQ 30-35 to 50) persons classified by Heber (1961) as moderate (IQ 36-51). Rychlak and Wade (1963) pointed out this confusion of terminology in evaluating the wide discrepancies in IQ scores used to classify persons as either “educable” or “trainable”.

The second edition of the DSM (APA, 1968) was adapted from Heber (1961) and identified 5 levels of mental retardation: Borderline (IQ 68-83), Mild (IQ 52-67), Moderate (IQ 36-51), Severe (IQ 20-35), and Profound (IQ under 20). Mental retardation referred to subnormal general intelligence originating during the developmental period which was associated with impairment of either learning and social adjustment or maturation, or both. Clinical judgment was recommended in assessing “the patient’s adaptive behavioral capacity” (APA, 1968, p. 14). The primary change from DSM-I was in differentiating severe and profound retardation.

The World Health Organization’s 5th Seminar on Psychiatric Diagnosis, Classification and Statistics occurred in 1969. Articles developed from the seminar were published in the American Journal of Psychiatry in 1972. Recommendations included development of a multiaxial diagnostic system which separated diagnosis of intellectual level, associated or etiological factors, and

psychiatric conditions (Tizard, 1972; WHO, 1972). Controversial issues included sociocultural retardation, a category used frequently in the U. S. but seldom in other countries (Tarjan & Eisenberg, 1972). Other challenges to consensus definition included the differing U. S. and British classifications of mental retardation (Ewalt, 1972). The 1 SD limit for inclusion of mental retardation was decried as inappropriately over-including non-retarded persons (Wortis, 1972). Two “new” diagnostic systems were suggested: a newly revised medical classification of 52 categories comprising mental retardation caused by either (1) pathological conditions of the parents’ reproductive cells, (2) harmful factors acting during the intrauterine period, or (3) damage to the central nervous system in the perinatal period or up to age 3 (Suhareva, 1972). The second called for a return to the distinction of biological handicap versus environmental deprivation (Wortis, 1972). Consensus was reached that the multi-axial system best met current needs in diagnosis, communication, and application across settings (Tarjan, Tizard, Rutter, Begab, Brooke, & De La Cruz, et al., 1972).

Grossman (1973) authored the sixth edition of the AAMD’s manual on terminology, which made significant changes. Professional sentiment demanded a change from the one standard

deviation cutoff to a more conservative measure of mental deficiency. Thus, the word “significantly” was added as a qualifier of “subaverage intellectual functioning”, and the criterion of two standard deviations below the mean was re-instituted. The developmental period was changed from 16 to 18 years. The seventh edition (1977) made minor corrections and clarified that the upper bound of mental retardation could extend upward to roughly 75.

Grossman (1983) also authored the eighth edition of the AAMD manual. Its changes were designed to coincide with both the ICD-9 and the DSM-III. Standard errors of measurement were taken into consideration for the first time, and the levels of mental retardation were considered more flexible at the borderlines: thus, mild mental retardation extended from 50-55 to approximately 70; moderate MR from 35-40 to 50-55; moderate from 20-25 to 35-40; and profound MR below 20-25. The continuing claim was made that the definition applied to *present functioning only*, and that one could meet criteria for MR at one time and not at another. Yet as before, no data were offered in support of this claim.

In debate following the 1992 AAMR definition, much heated rhetoric claimed to represent positions stated by Grossman (1983). Though Grossman has been cited by numerous authors, not all

quotes appeared in the appropriate context. For clarification of Grossman's language, the present work will excerpt a rather extensive section from Grossman (1983, pp. 22-24):

The upper limit of IQ 70 has been arrived at by professional consensus, after consideration of the consequences of setting a higher or lower value. The maximum specified IQ is not to be taken as an exact value, but as a commonly accepted guideline. ...the consistent point of view of the AAMD and of professionals serving mentally retarded persons is that clinical assessment must be flexible. Therefore, the judgment of clinicians may determine that some individuals with IQ's higher than 70 will be regarded as mentally retarded and others with lower IQ's will not. For that reason, the recommended ceiling may be extended up through 75, particularly in school settings where intellectual performance is a prerequisite for success and special educational assistance may be required....

It has become increasingly clear through research and experimentation that most individuals with IQ's below 70 are so limited in their adaptive competence that they require special services and protections, particularly during the school years. Although this need is also evident for some people with IQ's above 70, it is less critical and less frequent.

Setting the cut-off IQ at 70 appears to be the best solution for most of the problems encountered with the diagnosis of mental retardation of people who are in the "gray area" of retardation-average. Treating the IQ with some flexibility permits the inclusion of persons having higher IQs than 70 who truly need special education or other programs. It also permits exclusion of those with somewhat lower IQs than 70 if the complete clinical judgment is that they are not mentally retarded. Marginal persons who are determined to be not mentally retarded would, as a rule, not be entitled to services intended for the retarded group. Such people probably have problems that require attention,but some gaps in provision of services to needy persons may exist.

The effect of raising the upper limit beyond 70 or lowering it below 70 should be considered also as raising or lowering the band or uncertainty. Increasing the upper limit to 75 would make more people eligible for special education, job training, and habilitation services; however, such an increase also adds to the number of false positives, that is, individuals who are not, in fact, retarded and for whom special-class placement and other services might be inappropriate. The risk of misidentification is small, but real. Similarly, to lower the recommended maximum to 65 would reduce the already small risk of misdiagnosis but would deny services to many who need them. The proposed ceiling appears to be the best compromise between over and under identification and most likely to access services for those who need them.

Luckasson et al. (1992) authored the 9th Edition of the AAMR's manual. This definition represents a qualitative shift in terminology. Rather than significantly subaverage general intellectual functioning coexisting with deficits in adaptive behavior, mental retardation was re-conceptualized:

Mental retardation refers to *substantial limitations in present functioning* (italics added). It is characterized by significantly subaverage intellectual functioning, existing concurrently with related limitations in two or more of the following applicable adaptive skill areas: communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, and work. Mental retardation manifests before age 18 (Luckasson et al., 1992, p. 1).

Luckasson et al. stated these departures from previous attempts at definition:

1. It is an attempt to express the changing understanding of what mental retardation is;
2. It is a formulation of what ought to be classified as well as how to describe the systems of supports people with mental retardation require;
3. It represents a paradigm shift, from a view of mental retardation as an absolute trait expressed solely by an individual to an expression of the interaction between the person with limited intellectual functioning and the environment; and
4. It attempts to extend the concepts of adaptive behavior another step, from a global description to specification of particular adaptive skill areas.

In addition to re-defining adaptive behavior and increasing the upper boundary of IQ level including mental retardation, the 1992 revision abolished terminology referring to levels of mental retardation, a research-validated terminology in use for over 150 years. Luckasson et al. (1992) stated that the new definition was intended "to express the contemporary understanding of mental retardation". Another view is that this definition attempts to give precedence to procedures that are not data-based.

Once again, the stigmatizing nature of terminology was broached, as the AAMR set the stage for its next name change.

"Many individuals with this disability urge elimination of the term because it is stigmatizing and is frequently mistakenly used as a global summary about human beings...we were unable *at this time* to eliminate the term, despite its acknowledged shortcomings. The purpose of this manual was to define and create a contemporary system of classification for the disability *currently known as mental retardation*... (Luckasson et al., 1992, p. xi, italics added for emphasis).

Another area of concern is the Luckasson et al. (1992) definition's subtle shift in who may diagnose mental retardation. According to this definition, no longer is one person to diagnose mental retardation. Luckasson et al (1992) recommend that only an interdisciplinary team may confer the diagnosis of mental retardation. They state that "It (mental retardation) is not a medical disorder, though it may be coded in a medical classification of diseases... Nor is it a mental disorder, although it may be coded in a classification of psychiatric disorders..." (Luckasson et al., 1992. p. 9). This distinction may remove traditional associations with relevant professions. That is, if mental retardation is not within the fields of medicine or psychology, then only interdisciplinary teams are capable of assigning a diagnosis.

The 4th edition of the DSM (APA, 1994) offered a middle ground between Luckasson et al. (1992) and previous work. The Four levels of Mental Retardation were retained to indicate an individual's degree of intellectual and adaptive impairment. The levels correspond to those provided by Grossman (1983). Mental Retardation, Severity Unspecified, is used when there is a strong presumption of Mental Retardation but the individual is untestable with standard testing instruments (APA, 1994). The

DSM-IV adopted use of the AAMR's 10 adaptive skill areas, despite the lack of psychometrically sound assessment instruments for any of the ten areas.

In consideration of the confusion and disharmony characteristic of the field both at present and through time, one is given pause to consider whether the cryptic words of Goddard might not still ring true. "So we are in the unpleasant predicament of having a definition that does not define" (Goddard, 1928, p. 220).

In an attempt to restore the foundation of scientific work in the field of mental retardation, the Editorial Board of the APA Division 33 offered a definition of mental retardation to serve as an alternative to the AAMR's revisionary 1992 work (Editorial Board, 1996). Their newly formulated definition is reflective of the body of scientific knowledge amassed by researchers, and is the most comprehensive definition representing the state of scientific learning relevant to mental retardation. The definition states that mental retardation refers to significant limitations in general intellectual functioning and significant limitations in adaptive functioning existing concurrently with onset prior to age 22. The standard for significant limitations in intellectual functioning is a score 2 or more standard deviations below the mean of the

appropriate norming sample on a “valid and comprehensive, individual measure of intelligence administered in a standardized format and interpreted by a qualified practitioner” (Editorial Board, 1996, p. 13). Comparable deficits in adaptive functioning can be assessed using standardized measures of adaptive behavior, with the same criterion of 2 or more standard deviations below the mean serving as the cutoff. It is further specified that for those individuals without adaptive skill deficits, the presence of maladaptive behavior is not sufficient to confer a diagnosis of mental retardation (Editorial Board, 1996).

The Editorial Board further reiterated and re-established the well-researched and empirically validated concept of Levels of Retardation (mild to profound). These are more extensively and explicitly delineated to assist in diagnosis and tracking of problem behavior. The Editorial Board included tables identifying behaviors typical of individuals at each level of mental retardation at age 4, 7, 10, 12, and 16 years.

A further crucial distinction is made by the Editorial Board (1996) “Researchers commonly observe that the prevalence of mild MR decreases after the school years; they infer that this shift reflects successful, more independent functioning and fulfillment of adult familial and vocational roles in environments that differ

in their associated intellectual and pragmatic skill demands. In fact, few data are available to support such an interpretation. Generally, researchers have not followed entire cohorts of students after school departure for the period of time needed to assess social and vocational outcomes" (Editorial Board, 1996, p. 17).

Much debate has appeared in the professional literature in response to the Luckasson et al. (1992) definition (Matson, 1995a; Gresham, MacMillan & Siperstein, 1995). Though the American Association on Mental Retardation had been the primary authority for some thirty years, the credibility of this organization has been severely compromised in the eyes of many professionals. It is felt that the definitions of mental retardation proposed by the DSM-IV (APA, 1994) and the Editorial Board (1996) offer more viable alternatives, and lay the foundation for a workable definition consistent with the historical trends in the field. The next section will evaluate the presence of psychopathology in individuals with mental retardation.

DUAL DIAGNOSIS

Definition and History

Dual diagnosis refers to the presence of psychopathology, or mental illness, in persons with mental retardation (Matson, 1985, 1997; Matson & Barrett, 1993; Matson & Bamburg, 1998; Reiss, 1990, 1993). Though this condition has been noted by numerous researchers and service providers for over 100 years, the field as a whole has primarily developed since 1980 (Parsons, May, and Menolascino, 1984; Ruedrich & Menolascino, 1984; Matson, 1985; McLean, 1993; Reiss, 1993). Several factors have both hindered past development and influenced recent development. First, there has been a change in the nature of service delivery for persons with mental retardation. Second, there has been a change in the terminology and definition of mental retardation.

A third factor influencing the developing understanding has been the changing terminology in the field of mental health regarding of what constitutes psychopathology. Only following development of DSM-III (APA, 1980) has there been an adequate standardization of both terminologies (mental illness and mental retardation) to allow meaningful comparisons to be made across populations.

A fourth factor influencing the field has been the normalization movement (Nirje, 1969; Wolfensburger, 1980). Persons with disabilities have become more present and visible in the community. As services have focused on treating such problems as emotional disorders, it has become clear that individuals with disabilities experience the full range of emotional difficulties seen in the non-disabled population.

A fifth factor is the difficulty in identifying psychopathology in persons with mental retardation. Many professionals tend to attribute behavioral disturbance in persons with disabilities to the disability rather than possible psychopathology (Reiss, Levitan & Szyszko, 1982; Levitan & Reiss, 1983; Reiss & Szyszko, 1983). A final factor is the difficulty in measuring or evaluating psychopathology in the developmentally disabled population. Numerous psychometrically sound assessment instruments have been developed for use with individuals with normal intellectual functioning. Comparable instruments for use with developmentally delayed individuals have proven more difficult to develop. A major reason for this delay has been difficulty gaining access to sufficiently large, representative populations for study.

Prevalence

It has been well established that persons with intellectual disability evince a higher percentage of mental illness than persons of normal intellectual functioning (Matson, 1985; Dosen, 1993; Matson & Barrett, 1993; Rojahn & Tasse, 1996). However, the presence of mental illness in this population is often overlooked (Reiss, Levitan, & Szyszko, 1982). Numerous efforts have been made to determine the prevalence of psychopathology in persons with mental retardation (Menolascino, 1965; Rutter, 1970; Rutter, Tizard, Yule, Graham, & Whitemore, 1976; Szymanski, 1977; Rutter & Graham, 1979; Jacobson, 1982, 1990; Eaton & Menolascino, 1982; Reiss, 1985; Iverson & Fox, 1989; Borthwick-Duffy & Eyman, 1990; Crews, W. D., Bonaventure, S. & Rowe, F., 1994), yet prevalence rates for dual diagnosis have varied widely (Borthwick-Duffy, 1994; Parsons, May & Menolascino, 1984; Singh, Soneklar, & Ellis, 1991).

Rutter (1970) conducted a prevalence study of all 9- to 11 year old children living on the Isle of Wight, England. Mental retardation was diagnosed by IQ alone. Based on parent and teacher report, mental illness in persons with mental retardation ranged from 30-42%. Control groups of persons of normal intellectual functioning were identified as manifesting mental

illness in roughly 10% of cases (Rutter, 1970). This study is unusual in that it provides the base rate of psychopathology in the population under study.

Benson (1985) using an idiosyncratic diagnostic system studied 130 adults with mental retardation to evaluate differences in psychological symptoms by level of MR, age, sex, and presence of behavior disorders in an outpatient sample. Collecting data via record review, Benson classified subjects as either (a) Schizoid-unresponsive, (b) psychotic, (c) conduct disorder, or (d) Anxious-depressed withdrawal disorder. Conduct disorder and anxious-depressed withdrawal disorder were more common in individuals in the mild range of mental retardation.

Iverson and Fox (1989) evaluated a stratified, random sample of 165 adults with mental retardation for presence of psychopathology. They found that 35.9 percent of the sample met criteria for at least one disorder based on DSM-III. Additional findings were that psychopathology was related to level of retardation: 54.5% of persons with mild MR, 31.5% of persons with moderate MR, and 25.9% of persons with severe or profound MR met diagnostic criteria for a disorder.

Jacobson (1990) evaluated Individual Program Plans (IPPs) of 42,479 persons with developmental disabilities in New York State,

where roughly 20% of persons had been assigned a diagnosis. Records were based on DSM-II criteria, and indicated that the diagnosis of Psychosis was most often assigned, followed by Personality disorder, Nonpsychotic organic brain syndrome, and Neurosis. Problems with the study include the lack of a standardized assessments and outdated criteria for assignment of psychiatric diagnoses.

Borthwick-Duffy and Eyman (1990) evaluated records of 78,603 persons with mental retardation in California. They found that roughly 10% had an identified psychological disorder, and prevalence rates differed significantly by level of mental retardation (mild, 18.9%; moderate, 10.0%; severe, 5.3%; profound, 6.4%), as well as residence type (parent/relative home, 5.1%; institution, 18.6%; community facility, 18.4%). Persons with mild MR were more likely to have a diagnosis of a psychological disorder, but persons with more severe MR were more likely to be classified with a severe impact code (i.e., their behavior was of higher intensity and more problematic for staff).

Crews et al. (1994) evaluated records on 1273 persons with developmental disabilities at a developmental center in Virginia and found that 15.6% of 1,273 individuals with mental retardation in a large state facility warranted an Axis-I diagnosis. Prevalence of

diagnoses were 47% for mild, 38% for moderate, 23% for severe, and 11% for individuals with profound mental retardation. While roughly 16% of the entire cohort was identified as dually diagnosed, this figure may represent the lower boundary for psychopathology in the sample. Assessment was idiosyncratic, and based on individual examiners' clinical judgment. Since no standardized assessment procedures were utilized, no evidence suggests that psychopathology was ruled out in cases where disorders were not reported, or that persons with a diagnosis exhibited sufficient symptoms to warrant the diagnosis.

Numerous explanations have been offered for discrepancies in studies attempting to document prevalence of mental illness in persons with mental retardation. These have included a) differences in the population studied (e.g., age differences; Clinic-referred vs. population); b) differences in the definition of mental retardation utilized (e.g., evaluations by professionals vs. archival record review); c) differences in the range of psychological disorders surveyed; and, most importantly, d) differences in methodology for determining psychological disorders (Borthwick-Duffy, 1994; Rojahn & Tasse, 1996).

In a widely-cited review, Borthwick-Duffy (1994) identified significant trends among 21 studies of epidemiology and prevalence

of dual diagnosis. She pointed out that studies utilizing record review tended to report the lowest prevalence rates of dual diagnosis (11.7%). These studies, however, do not accurately reflect the presence of psychopathology, but rather the rates of diagnosed psychopathology (Borthwick-Duffy & Eyman, 1990). Studies utilizing screening tools identified higher rates of psychopathology (39%), and studies involving clinical evaluations of referred clients identified the highest incidence (59.5%; Borthwick-Duffy, 1994).

Despite the many methodological problems that make comparisons tenuous, one point is clear. Large-scale studies utilizing record review reveal much lower rates of identified psychopathology than would be expected, given the results of numerous smaller-scale studies involving screening and/or evaluation of persons with mental retardation. If prevalence rates are more in line with these smaller studies (e.g., Matson et al., 1984; Reiss, 1990; Phillips & Williams, 1975; Chess, 1977), then the unidentified mental illness in persons with mental retardation could be of epidemic proportions.

Many researchers have concluded that the incidence of mental illness in persons with mental retardation is highest for persons classified as mildly mentally retarded (Jacobson, 1982;

Iverson & Fox, 1989; Borthwick-Duffy & Eyman, 1990). There are several reasons for this conclusion. First, diagnostic criteria used for the non-developmentally delayed population can most readily be applied. Since most persons with mild retardation have verbal skills that allows adequate communication, they can respond to questions regarding internal stimuli and subjective matters. Yet response sets, expectancy effects, and desire to appear "normal" must be taken into account. The awareness of being treated differently and being stigmatized may also be a considerable source of anxiety for persons in this group, which increases the likelihood of anxiety and/or mood difficulties. Thus, the rhetorical question may be posed, "Is the incidence of mental illness higher in this group, or is it just easier to diagnose?" The interplay of many factors, including organic, developmental, behavioral, and sociocultural factors likely accounts for the expression of mental illness in this population (Matson & Sevin, 1994; Matson, 1985). We are still at an early stage of attempting to quantify these factors, particularly with a more severely disabled population.

What Constitutes Psychopathology in MR?

Researchers have differed on what constitutes psychopathology in persons with mental retardation (Einfeld & Aman, 1995). Matson (1985, 1998) has maintained that this group

evinces the full spectrum of psychopathology, as represented in the DSM nosology. This position has been supported by other researchers (Myers, 1986, 1987; Glick & Zigler, 1995; Menolascino, 1990). Others have attempted to expand the construct of psychopathology to include aggressive behavior (Reiss, 1988, 1990, 1992). For purposes of this study, psychopathology in persons with mental retardation will refer to the diagnostic categories of DSM-IV (APA, 1994).

Assessment

The assessment of dual diagnosis is complex in that it requires identifying and defining symptoms of psychopathology as well as systematically ruling out those aberrant behaviors that are environmentally maintained. Nezu, Nezu, and Gill-Weiss (1992) pointed out that though diagnosis for psychologists and behavior analysts may have formerly been at odds, both methodologies are required for the dually diagnosed. Singh et al. (1991) presented a comprehensive model for assessment of dual diagnosis that follows recommendations by Cone (1978). They suggested a sequenced, multi-element approach beginning with a standardized evaluation of intellectual and adaptive functioning, an evaluation of possible psychopathology (utilizing a record review, case history, and screening instruments), a clinical interview that must be tempered

by the individual's level of functioning, the use of rating scales and checklists specific to the behavior of concern, and direct behavioral observation. The sixth and final type of information comes from laboratory procedures such as neuropsychological or neurological testing (Singh et al., 1991).

Though admirably comprehensive, this methodology is currently hampered by limitations on resources and materials. Cone pointed out (1987, p. 35) that "the present state of assessment technology does not lend itself easily to the production of such integrated systems." Singh et al. (1991) further called for refinement of available assessment instruments and development of new ones.

Clinical interviews. Some researchers have suggested that standardized clinical interviews might be useful with persons with mild or moderate mental retardation, since DSM diagnostic criteria apply with only minor modification to this population (Singh et al., 1991). Other researchers disagree, as persons with mental retardation are not reliable sources of self-report information (Aman, Watson, Singh, Turbott, & Wilsher, 1986; Watson, Aman, & Singh, 1988; Iverson & Fox, 1989).

Scope of mental illness. Matson has consistently pointed out that persons with intellectual disability evince the full range of

psychopathology (Matson, 1985, 1997). He has attempted to apply the relevant DSM criteria to the population of persons with disabilities. Others have taken a different approach to psychopathology in this population by disregarding traditional symptomatology and focusing on maladaptive or problematic behavior. Reiss (1988, 1994) has attempted to characterize a variety of problem behavior as psychopathology. Rojahn and Tasse (1996) suggest that the scope of psychopathology in persons with mental retardation should be expanded to include destructive or aggressive behavior. This recommendation must be considered with caution, due to the learning/reinforcement histories of the individuals involved. Because of varying criteria for mental retardation and past conditions at many institutions for the disabled, many persons in institutions have been subject to less than optimal circumstances. That staffing levels and expertise have been inadequate can be easily demonstrated by reference to the rates of psychotropic medications prescribed in such institutions (Pyles, Muniz, Cade & Silva, 1997; Kalachnik, Hanzel, Harder, Bauernfiend, & Engstrom, 1995; Crews et al., 1994; Friedman, Kastner, Plummer, Ruiz & Henning, 1992). Furthermore, if a particular behavior is not indicative of psychopathology in persons of normal intellectual functioning, the

same behavior is not indicative of psychopathology in persons with disability.

Checklists and rating scales. Traditional clinical interviews to evaluate psychopathology in persons with mental retardation have significant limitations (Sovner, 1986). Though valuable information may be gained through observation of and interaction with the individual concerned, persons with intellectual disability are typically poor reporters of their own behavior (Sovner, 1986). Thus, information gathering interviews must rely on the report of parents, teachers, or caregivers who are well acquainted with the individual. Disadvantages of interviews include poor reliability and that they are both time and labor intensive. For these reasons, rating scales/checklists have become prominent in assessing this population. These instruments cover both definitions of psychopathology, those addressing maladaptive or problem behavior and those following the DSM nosology.

Rating scales focusing on specific maladaptive behaviors are empirically derived. These include the Aberrant Behavior Checklist (ABC); (Aman, Singh, Stewart & Field, 1985), the Inventory for Client and Agency Planning (ICAP); (Bruininks, Hill, Weatherman, & Woodcock, 1986), and the Behavior Problem Inventory (BPI); (Rojahn, 1992).

The ABC is a 58-item instrument designed to evaluate pharmacological treatment outcomes in persons in the moderate to profound range of mental retardation (Aman & Singh, 1986). There are 5 subscales: (a) Irritability, Agitation, Crying; (b) Lethargy, Social Withdrawal; (c) Stereotypic Behavior; (d) Hyperactivity, Noncompliance; and (e) Inappropriate Speech. The scale has shown good reliability for use with moderately to profoundly retarded persons, and it has proven to be a viable instrument for assessing the effectiveness of both psychotropic and seizure medication regimes.

The ICAP covers 8 areas of problem behavior: (a) hurtful to self; (b) hurtful to others; (c) destructive to property; (d) disruptive behavior; (e) unusual or repetitious habits; (f) socially offensive behavior; (g) withdrawal or inattentive behavior; and (h) uncooperative behavior. Both frequency and severity of behavior are rated, then summed for comparison with published norms. The ICAP yields scores in four domains. These include asocial, internalized, externalized, and general maladaptive behavior. While the ICAP may be helpful in identifying some behavioral strengths, excesses, and deficits, further studies are warranted to validate the scale's overall utility.

The BPI was originally used to identify stereotypy and self-injury (Rojahn, 1986), but items were later added to address aggression (Rojahn, Polster, Mulick, & Wisniewski, 1989). It now comprises 32 items addressing frequency of problem behavior. Items are scored on a 7 point, Likert-type scale anchored by “never” and “more than hourly”.

While scales such as the above can be excellent for identification of specific behavior problems and in tracking treatment progress, they do not readily contribute to diagnostic efforts (Aman, 1991). That is, behaviors identified on such measures do not correspond to current DSM categories, and the measures do not screen for commonly understood categories of psychopathology. As a result, a number of different scales attempting to better assess psychopathology have been developed.

The second group of scales is comprised of those which lead to diagnoses that correspond to the DSM nosology. These include the Psychopathology Instrument for Mentally Retarded Adults (PIMRA); (Matson, Kazdin, & Senatore, 1984), the Diagnostic Assessment for the Severely Handicapped (DASH); (Matson, Gardner, Coe & Sovner, 1991), the Reiss Screen for Maladaptive Behavior (RSMB); (Reiss, 1988), and the Assessment for Dual Diagnosis (ADD); (Matson, 1997; Matson & Bamburg, 1998).

Borthwick-Duffy and Eyman dismissed the likelihood of identification of psychopathology in over 86, 000 individuals living in the California service system, stating that “it would be impractical to routinely evaluate all clients for psychiatric disorders” (1990, p. 593). Scales of this sort are specifically designed to facilitate routine, timely screening for symptoms of psychopathology in persons with MR. They are inexpensive, cost-effective, and utilize information derived from staff or relatives who know the clients well.

The PIMRA, a 56 item scale based on DSM-III diagnostic criteria, was developed by Matson and associates (Matson, Kazdin, & Senatore, 1984; Senatore, Matson, & Kazdin, 1985; Helsel & Matson, 1988). The PIMRA has 8 subscales comprised of 7 questions each. Items are scored “yes” or “no”, then totaled within subscales to compare to diagnostic criteria. Subscales are: (a) Schizophrenia, (b) Affective Disorders, (c) Anxiety Disorders, (d) Adjustment Disorder, (e) Inappropriate Adjustment, (f) Personality Disorders, (g) Sexual Disorders, and (h) Somatoform Disorder. The PIMRA has been widely used and has shown to have good psychometrics when used with a mild to moderately retarded population, but is hampered by not addressing the full range of psychopathology, its reliance on DSM-III criteria, and its failure to

assess duration or severity components of the endorsed symptoms (Aman et al., 1986; Watson et al., 1988; Iverson & Fox, 1989; Sturmey & Ley, 1990; Swiezy, Matson, Kirkpatrick-Sanchez, & Williams, 1995; Sturmey, Jamieson, Burcham, Shaw, & Bertram, 1996).

The DASH-II represents the first psychopathology screening tool designed specifically for use with persons with severe or profound mental retardation (Matson, Coe, Gardner, & Sovner, 1991). It was developed with an institutionalized sample, is based on DSM-III-R criteria, and covers disorders found to occur in the severely disabled population (Hamilton, 1995). The DASH-II employs an interview format, with a caregiver who knows the client well providing information. It allows for ratings of behavior frequency, severity, and duration. Subscales include (a) Anxiety; (b) Mood disorder - Depression; (c) Mood disorder - Mania; (d) Autism; (e) Schizophrenia; (f) Stereotypies/Tics; (g) Self-injurious behavior; (h) Elimination disorders; (i) Eating disorders; (j) Sleep disorders; (k) Sexual disorders; (l) Organic syndromes; and (m) Impulse control and miscellaneous problems.

Researchers have shown that the DASH-II has demonstrated acceptable to good internal consistency and interrater reliability (Matson et al., 1991; Sevin, 1992). There is substantial research

supporting the validity of the instrument (Matson, Smiroldo, & Hastings, 1998; Matson, Kiely, & Bamburg, 1997; Matson, Hamilton, Duncan, Bamburg, Smiroldo, Anderson, et al., 1997; Paclawskyj, Matson, Bamburg, & Baglio, 1997; Matson & Smiroldo, 1997; Matson, Smiroldo, Hamilton, & Baglio, 1997; Matson, Baglio, Smiroldo, Hamilton, Paclawskyj, Williams & Kirkpatrick-Sanchez, 1996).

The Reiss Screen (Reiss, 1988) is a 36 item informant report measure using Likert-type scales to rate eight factor-analytically derived scales. They are (a) Aggressive Behavior; (b) Psychosis; (c) Paranoia; (d) Depression (behavioral signs); (e) Depression (physical signs); (f) Dependent personality disorder; (g) Avoidant disorder; and (h) Autism. Reiss has consistently claimed excellent psychometrics for this instrument, but evidence for validity and the consistency of the factor structure has been mixed at best in the literature (Reiss, 1988, 1990, 1992, 1993; Sturmey et al., 1996; Sturmey, Burcham, & Shaw, 1996; Sturmey, Burcham, & Perkins, 1995; Sturmey & Bertman, 1994).

The ADD is a 79 item informant report instrument for screening psychopathology in persons with mild or moderate mental retardation. It utilizes DSM-IV criteria and covers a much

broader spectrum of psychopathology than previous measures. Its 13 subscales include: (a) mania, (b) depression, (c) anxiety, (d) posttraumatic stress disorder, (e) substance abuse, (f) somatoform disorders, (g) dementia, (h) conduct disorder, (i) pervasive developmental disorder, (j) schizophrenia, (k) personality disorders, (l) eating disorders, and (m) sexual disorders.

Following the model of the DASH-II, The ADD allows for assessment of frequency, duration, and severity of specific symptoms. It has shown excellent internal consistency ($r = .93$), subscale ($r = .83 - 1.00$), and total score reliability ($r = .98$) (Matson & Bamburg, 1998).

Choices of instruments available for diagnosing psychopathology in persons with mild to moderate mental retardation yield only 2 measures: the PIMRA and the ADD. Of the two, the PIMRA has been available longer and has been utilized in more studies. Yet it utilizes DSM-III diagnostic criteria, and does not allow ratings of duration or severity of identified symptoms.

Though the ADD has been recently developed, it has been shown to have excellent psychometric properties (Matson & Bamburg, 1998). Furthermore, it allows for assessment of

frequency, severity, and duration of symptoms of psychopathology. In addition, it permits evaluation of a much broader spectrum of psychopathological symptomatology than the PIMRA. Areas screened on the ADD that are not included on the PIMRA include PTSD, Substance Abuse, Dementia, Conduct disorder, PDD, Eating, and Sexual disorders. Perhaps most importantly, the ADD utilizes diagnostic criteria from DSM-IV, and most readily permits application of relevant, currently accepted standards for psychopathological symptomatology to persons with mild or moderate mental retardation. Thus, the ADD was utilized in the present study.

SOCIAL SKILLS

Social skills are crucial to adjustment and normal interpersonal functioning. Deficits in social skills are at the core of the difficulties experienced by persons with mental retardation. Social skills deficits can lead to isolation from friendships and peer interactions, which may limit further social learning opportunities to improve social skills (Grossman, 1977, 1983). These limitations can create a cyclic pattern of isolation or peer rejection (Oden, 1980). Though obscured in the most recent AAMR definition (Luckasson et al., 1992), deficits in social functioning are always seen in persons with mental retardation (Grossman, 1983; Matson, 1995b). Thus it is critically important to persons with disabilities that accurate assessment and treatment of social skills be part of any credible effort to improve quality of life. This review will provide both an overview of definitions of social skills and a summary of assessment techniques that have been used with persons with disabilities.

Studies of social skills began with assertiveness training and dating skills with college undergraduates (McFall & Marston, 1970; McFall & Littlesand, 1971). Success in training adults led to the application of this methodology to a variety of difficulties including adults with mental illness such as schizophrenia

(Bellack, Hersen & Turner, 1976; Hersen & Bellack, 1976; Hersen, Eisler, & Miller, 1973; Matson & Stephens, 1978), depression (Libet & Lewinsohn, 1973; Williams, 1986; Helsel & Matson, 1988; Love & Matson, 1990), and social anxiety (Trower, 1986). Gibson, Lawrence, and Nelson (1976) performed the first study utilizing multiple procedures to train operationally defined target behaviors to persons with mental retardation. Matson and colleagues soon began wide application and refinement of social skills training with persons with mental retardation (Matson & Adkins, 1980; Matson, DiLorenzo, & Andrasik, 1980; Matson, Kazdin & Esveldt-Dawson, 1980; Matson & Earnhart, 1981; Matson & Senatore, 1981; Matson, 1982). The past 20 years have seen an exponential increase in social skills training for persons with mental retardation.

Despite ongoing research, a universally accepted definition of social skills has not emerged (Christoff & Kelly, 1985). While a variety of specific interpersonal behaviors have successfully been taught to individuals with mild and moderate mental retardation, no consensus has emerged regarding either specific combinations of generically necessary skills or assessment methods (Matson, DiLorenzo, & Andrasik, 1980; Marchetti & Campbell, 1990; Siperstein, 1992).

The following review of definitions will cover the major themes reflected in the social skills literature. The review will be followed by an overview of assessment of social skills and a discussion of the relationship of psychopathology to social skills.

Definitions of Social Skills

Libet and Lewinsohn (1973) stated that a socially skilled person can exhibit behaviors which are reinforced and refrain from exhibiting behaviors that are punished. Thus, the ability to be maximally reinforced and minimally punished in social interactions constitutes social skill. This view has been restated by a number of researchers. Hersen & Bellack (1977) said that expressing both positive and negative feelings in the interpersonal environment without loss of reinforcement indicates social skill. Combs and Slaby (1977) identified both personal and social normative behavior as comprising social skills. That is, the ability to interact in social settings in socially acceptable ways which benefit self, others, or are of mutual benefit indicates social skills.

Curran (1979b) pointed out that unacceptable behavior can also be reinforced (e.g., whining or tantrumming), and that acceptable behavior may be subject to extinction or punishment (e.g., telling the truth rather than lie for a friend). Foster and Richey (1979) attempted to expand the realm of social skills

research to include an evaluation of the effect of both antecedents and consequences on social functioning. They recognized that social skills theory had only partly subsumed the operant paradigm. They pointed out that social skills are context dependent, and include both positive (desirable) behaviors and the absence of negative (undesirable) behaviors.

Curran (1979b) noted that social skills definitions had progressively included a wider sphere of human activity, including the addition of both cognitive elements and nonverbal behavior. He stated that without limits, the term social skill “will expand to include all human behavior, and social skills training will soon come to mean any process which is capable of producing change in human behavior” (Curran, 1979a, p.323). He suggested narrowing the array of behavior considered social skills to overt motor behavior. Kelly (1982) stated that social skills are identifiable, learned behaviors which individuals use to obtain or maintain a socially reinforcing environment. One who can easily meet others, converse effectively, share information, and leave others with positive feelings following interactions is socially skilled (Kelly, 1982).

Gresham (1981) distinguished between failure due to lack of social skill and failure due to emotional arousal interfering with

acquisition and/or performance of the skill. Gresham and Cavell (1987) attempted to more broadly apply terminology to social skills, proposing two ways of evaluation. They suggested that if a person is popular, then they are socially skilled. This model is referred to as a peer acceptance model of social skills. Another method is to evaluate the presence of behaviors determined *a priori* to indicate social skill. This latter model reflects a behavioral definition of social skills.

Matson and colleagues have consistently espoused the molecular view which typifies behavioral approaches to defining social skills in individuals with developmental disabilities. Andrasik and Matson (1984) state that social skills are made up of the behaviors that encompass interpersonal behavior, and that one who can put others at social ease and make others feel good after an interaction is socially skilled. Matson and Ollendick (1988) have further stated that a socially skilled person can adapt well and avoid verbal or physical conflict by communicating with others. Matson and Hammer (1996, p. 158) state succinctly that "social skills are defined as measurable interpersonal behaviors". They exclude items referring to "internal mental events or psychic conflict" due to the difficulties in attaining reliable measurement. Matson and Hammer also focused the definition by excluding

adaptive skills such as dressing or eating, as these behaviors are not social in an interactive sense. They echo McFall (1982), who pointed out that social behaviors do not exist in the abstract, but have meaning only within a defined context.

Social Competence

McFall (1982) distinguished between two conceptual models of social skills, trait/molar versus molecular models. In the molar view, social competence is seen as either a general tendency, or stable trait (i.e., a hypothetical construct), that governs an individual's social responding across time and circumstances; it is a "reflection of the person's degree of social skillfulness" (McFall, 1982, p. 2). Thus, one has an internal store of innately determined social skills. These unobservable skills are hypothesized to account for the behavioral expression of social skills. The expression of behavioral skills is thought to prove the existence of the internal trait. McFall points out that this logic constitutes circular reasoning.

The molecular view suggests that social behavior is both situationally specific and context dependent. The model suggests that situational determinants of behavior are more important than individual determinants. It makes no inferences regarding underlying constructs and is particularly well-suited for planning

and evaluating interventions. Though the model readily accommodates precisely operationalized skills, the idiosyncratic nature of the model leads to a relatively labor-intensive intervention.

McFall (1982) stated that two elements, an individual's cognitions regarding the social milieu and an expert evaluation, are necessary to determine social skillfulness. Social competence is an evaluative term and must be based on judgment by a rater. This competence necessitates consideration of factors including evaluation criteria, judge's bias or error, age, gender, or any other personal characteristic due to the socially interactive nature of the process.

Cavell (1990) proposed a tri-component model of social competence. The model is conceptualized as having 3 levels; social skills at the lowest level, social performance at the second level, and social adjustment at the highest level. Cavell views social functioning as comprised of encoding skills, decision skills, and enactment skills. Social adjustment is characterized by the attainment of societally determined, developmentally appropriate goals. Social performance reflects the degree to which one's responses to social situations meet socially valid criteria. Social skills are the abilities that allow one to competently perform social

tasks. One goal of the tri-component model is “limiting the role social skills have in... why youngsters perform poorly in social situations” (Cavell, 1990, p. 119). Cavell states that social skills are relatively stable aspects of an individual’s social functioning that “are used to alter the topography of social performance to meet shifting task demands” (Cavell, 1990, p. 118).

Bye and Jussim (1993) propose a filter model for developing social knowledge and social competence. The filters are (a) environmental factors, (b) physiological factors, (c) information processing, (d) social knowledge, and (e) motivation. The first three filters are thought to impact social knowledge acquisition and social performance. For example, the environmental influence of culture may affect knowledge acquisition and behavior by providing access to only selective influences and social models. A physiological factor such as agoraphobia may likewise limit knowledge acquisition and behavior by restricting one’s experience and exposure to the world. The final two factors are thought to influence social performance, but not social knowledge acquisition.

Gumpel (1994) proposed a model which “expanded” the behavioral paradigm for social skills. It included six steps: (a) decoding skills, (b) decision skills, (c) performance skills, (d) self-

monitoring judgments, (e) environmental judgments, and (f) cognitive structures. Gumpel comments that “social skills training should emphasize the covert process of generating socially skillful performance rather than solely emphasizing the overt reproduction of component behaviors” (1994, p. 198). As support for this formulation, Gumpel refers to his 1993 study of facial affect recognition. The study purports to show through “sophisticated psychometric techniques” that adults with mental retardation perceive facial affect qualitatively differently than non-handicapped persons.

Stewart and Singh (1995) arrived at very different findings, without resorting to “sophisticated psychometric techniques.” They utilized methods developed by Ekman and Friesen (1975, 1976, 1978) to teach persons with mild to severe retardation the relevant cues that indicate facial affect. The speed and relative ease with which subjects mastered the understanding and production of facial affect suggests that learning to discriminate facial affect is due more to precise operationalization, the teaching of relevant cues, and reinforced repetition, than to “qualitatively different decoding skills”. Perhaps what was qualitatively different were the behavioral cues to which persons with mental retardation attend. Once Stewart and Singh (1995) taught the appropriate

cues, their subjects were able to appropriately discriminate facial affect.

Theories of social skills abound in the literature. These range from uncomplicated molecular views to elaborate molar views. The primary distinction in these theories appears to be their intended function. When used to guide treatment decisions and evaluation for persons with mental retardation, social skills typically assume a molecular form. When used with persons of normal intellectual functioning, more cognitive elements are often considered. When serving as a basis for heuristic debate concerning cognitive models, still more elaborate expansion is common.

In general, social skills studies with mentally retarded persons have focused on context-specific problems and their remediation. Development and expansion of terminology reflected the dawning awareness that all interpersonal problem behavior could accurately be placed within the sphere of social skills. Specific, problem-focused uses of social skills have been of value in both training specific skills and in repeated measures for evaluating treatment efficacy. Matson has consistently espoused this approach. He has maintained that component social skills are the appropriate target of assessment and treatment, and that

these skills used in concert can account for substantial improvements in social (interpersonal) functioning. Evidence in the literature supports this position (Stewart & Singh, 1996).

In sum, that experts have failed to agree on an all-encompassing definition of social skills is neither surprising nor mysterious. Simply put, interpersonal behavior consists of situationally specific reciprocal interaction (Powers & Handleman, 1984). Any attempt to distill the most critical generic “skills” for instruction is meaningless without reference to a context, particularly in persons with mental retardation (McFall, 1982). Thus, the method of identifying molecular behaviors in particular contexts for skill acquisition will likely remain the dominant model for the foreseeable future. Indeed, what constitutes social skill may vary as a function of the target population and goals of interaction.

Assessment of Social Skills

It has long been accepted that social roles and responsibilities differ at different developmental periods (Heber, 1959, 1961; Editorial Board, 1996). Individuals can be assessed in infancy, childhood, or adulthood. The form that social skills take at these very different stages of development requires assessment of different skills. Thus, as different circumstances require the

expression of different social skills, assessment methods must reflect these differences.

For young children and adolescents, it is far easier to anticipate social skills needs than for adults. Normal adult behavior involves such varied interpersonal scenarios as the work environment and work relationships; the social-sexual environment and relationships; and the varied interactions necessary for fully functioning in the normalized world. The Editorial Board (1996) listed adaptive skills typical of several age groups (Ages 4, 7, 10, 12, and 16 years) at mild, moderate, severe, and profound levels of mental retardation. This effort, not surprisingly, did not include adults. The variety and contexts of adult living simply do not lend themselves to easy generalization regarding necessary skills. These must be evaluated on a case-by-case basis.

In assessing social skills in persons with mental retardation it is important to first identify socially important goals (Kazdin & Matson, 1981). Thus, a relation is established between identified skill deficits and desirable social outcomes. This process of social validation normally involves either direct comparison of the subject to an appropriate peer group or subjective evaluation by appropriate individuals (Kazdin & Matson, 1981). Identifying an

appropriate comparison group for persons with mental retardation presents problems; thus, subjective evaluation has been the preferred method with this population (Kazdin & Matson, 1981).

Three primary objectives in social skills assessment are to globally assess social skills, to identify specific skill areas for treatment, and to evaluate treatment efficacy (Matson & Hammer, 1996; Marchetti & Campbell, 1990; McFall, 1982). Methods for assessing social skills have historically fallen into three categories: sociometric methods, direct observation, and rating scales.

Sociometric methods. Sociometric methods have been utilized principally with children and utilize the techniques of peer ratings and peer nominations (Kennedy, 1988; Gresham & Elliott, 1984). Peer ratings involve asking children to rate their peers on how much they like or want to work with various peers. Questions might involve asking a child, for example, how much he or she would like to play with each member of the class (Bullock, Ironsmith, & Poteat, 1988; Gresham & Reshley, 1986). A class roster of picture of each individual is provided, with ratings on a Likert-type scale. Scores are simply the average of peer ratings.

An alternate sociometric method is to have each person “nominate” their three to five most or least favorite peers (Kennedy, 1988; Bullock et al., 1988). Nominations are typically

on a positive or negative quality that is inferred to mean acceptance or rejection of the nominees. Positive ratings include "favorite playmate" or "best friend" (Bullock et al., 1988; Gresham, 1986). Negative qualities include examples such as "least favorite playmate" (Bullock et al., 1988). Scores from peer nominations among elementary school children have been shown to have only moderate stability across the school year, perhaps reflecting changes over time in peer relationships (Gresham & Stuart, 1992).

Peer generated sociometric procedures, while providing useful information, are of limited usefulness for persons with developmental disabilities. Though yielding information on which individuals might be accepted, rejected, or neglected, they provide little input for target behaviors (Gresham, 1981). Given their time and labor-intensive nature, widespread use will likely be limited to research activities (Matson & Ollendick, 1988). Both peer ratings and peer nominations yield data which is of limited usefulness for the purpose of diagnosis, treatment planning or evaluating efficacy. Thus, these techniques are of questionable utility for individuals with mental retardation, and have been infrequently used with this population.

Direct observation. Direct observation methods have been used with persons with mental retardation. These have taken the

forms of analogue and naturalistic (Bellack, 1979; Gettinger & Kratochwill, 1987). Each will be discussed in turn.

When observation of an individual in the natural setting is not possible, analogue or simulated settings may be used.

Analogue observation often involves presentation of a role-play or simulated situation to which an individual responds. Because of cost-effectiveness and the ease in observing low-frequency behavior, role-play has been commonly employed in assessing social skills. Role-plays generally involve a description of a scene, followed by the subject's "natural" response (Marchetti & Campbell, 1990). The primary difficulty with this method is that of generalization to the naturalistic environment.

Benefits of this technique include the opportunity to evaluate normally low-frequency behavior, as well as provide a relatively cost-effective means of observing the behavior of interest. The target individual is observed in a setting which as closely as possible approximates the normal setting. Such settings are structured specifically to elicit the target behavior. Another benefit is the in-depth evaluation made possible by audiotape or videotape recording of the behavior (Mueser & Bellack, 1998).

Problems with analogue observation include lack of external validity and lack of correspondence between role-play measures

and other social skills assessment techniques (Bellack, 1979; Bellack, Hersen & Turner, 1976). In addition, behavior normally seen in role plays is relatively brief and highly structured; as such, it may not be reflective of real-world behavior (Mueser & Bellack, 1998). The more closely the analogue setting resembles the natural environment, the more likely success will ensue. Matson and Ollendick (1976) observed and successfully treated low-frequency biting behavior in normal functioning children in an analogue setting. The children's parents had sought help for the biting problem and were used to create a structured play setting that resembled the home environment.

Naturalistic observation takes place in the client's normal environment. Seeing the behavior of interest in the environment where it takes place is the theoretical ideal for observational assessment. Since target behaviors are operationally defined, recorded by trained observers, and recorded by a specified set of rules, naturalistic observation requires less inference than other assessment techniques (Gettinger & Kratochwill, 1987). Data obtained through direct observation are most likely subject to generalization (Marchetti & Campbell, 1990).

However, there are difficulties obtaining this most desirable measure. First, direct observation is both costly and time

consuming, particularly if the target behavior occurs infrequently. Second, many persons with mental retardation live in institutional or community settings where contact with new adults is relatively rare. Thus, the presence of an observer can cause reactivity with subjects who may not exhibit their normal behavior.

Direct observation often involves either standardized pre-determined social situations (Taylor & Harris, 1995) or standardized naturalistic conditions in which an individual's discrete behaviors are recorded (Sigafos, 1995). Behaviors of interest in these situations typically include eye contact, tone of voice, and appropriate assertiveness (Matson & Hammer, 1996). Behaviors are rated for either occurrence/non-occurrence or on a Likert-type scale, often of 5 points (e.g., anchored by "always" and "never"). Observation of problem behavior typically focuses on frequency, intensity, and/or duration of the target behavior.

Rating Scales. Rating scales have been used extensively in evaluating social skills. They are relatively quick, inexpensive, and can often be used as repeated measures to assess outcome (Marchetti & Campbell, 1990). Commonly utilized measures of adaptive behavior such as the Vineland Adaptive Behavior Scale (Sparrow, Balla & Cicchetti, 1984) or the American Association on Mental Retardation Adaptive Behavior Scale (Nihira, Foster,

Shelhaas, & Leland, 1969) are inappropriate for evaluating social skills because social skills constitute a small spectrum of the behavior assessed by these scales (Matson & Hammer, 1996). These measures primarily assess self-help skills such as grooming, eating, and dressing, as well as disruptive behavior in the realm of social functioning. Such behaviors have not been included in social skills research with non-retarded populations; hence, they should not be included for persons with disabilities (Matson & Ollendick, 1988). Social functioning is more appropriately conceptualized as interpersonal functioning; therefore, accurate measures of social functioning must measure discrete, relevant social behaviors such as “establishing eye contact, making socially appropriate compliments, using appropriate social affect, and making helpful comments” (Matson and Hammer, 1996, p. 158).

The Social Performance Survey Schedule (SPSS); (Lowe & Cautela, 1978), is a 100 item psychometrically sound self-report measure of social skills used with adults. The scale contains 50 positive and 50 negative items, and is scored on a 5 point, Likert-type scale. Initial studies provided internal consistency ($\alpha = .88$) and test-retest reliability ($r = .87$). Numerous studies have been conducted with this scale, which has demonstrated good psychometric properties, predictive validity, and correlation with

social perception (Lowe, 1985; Miller & Funabiki, 1984; Fingeret, Monti & Paxson, 1983).

Matson, Helsel, Bellack, and Senatore (1983) developed the Social Performance Survey Schedule for use with adults with mild or moderate mental retardation. Subjects were 22 adults ages 21-59 (Mean= 46 years) with mild or moderate mental retardation. The SPSS was completed by a direct care staff person who had worked with the client for at least one year, and who knew the client well. Items were retained based on Pearson Product Moment correlations of .30 or greater with total score. The original SPSS contained 50 positive and 50 negative items; the resulting SPSS comprised 28 positive and 29 negative items. Correlations ranged from .30 to .82, with a mean of .57. The original Likert-type scoring format was retained.

In a second study, Matson et al. (1983) performed a principal components factor analysis on SPSS scores of 207 adults with mental retardation who were community residents or lived in institutions. Four factors emerged from the data: Appropriate Social Skills, Communication Skills, Inappropriate Assertion, and Sociopathic Behavior. The resulting scale significantly differentiated high- from low-medication clients on the Appropriate

Social Skills factor, but not on the other factors (Matson, Kazdin & Senatore, 1984).

Helsel and Matson (1984) utilized the SPSS in evaluating the relationship between social skills and depression in 99 developmentally delayed adults. Self-report and informant report versions of the SPSS were employed in the study, which found significant correlations between SPSS scores and scores on measures of depression.

Manikam, Matson, Coe and Hillman (1995) investigated differences in depression, psychopathology, and intellectual and adaptive functioning in 100 adolescents ranging from moderately mentally retarded to above average intelligence. Persons with mental retardation reported more symptoms of depression and more total symptoms of psychopathology. Significant differences were identified on the self-report measures between persons with mental retardation and non-disabled cohorts.

Still in development is the Measure of Observable Social Skills (MOSS; Matson & Farrar-Schneider, 1995). The MOSS is a 94 item informant response instrument covering a range of interpersonal functioning. Two 47-item forms have been developed, and both have demonstrated good internal consistency (Form A, $r=.92$; Form B, $r=.93$), and test-retest reliability (Form A,

$r=.89$; Form B, $r=.90$). Interrater reliability was moderate (Form A, $r=.52$; Form B, $r=.63$). A factor analysis of the MOSS with 212 subjects yielded 2 factors (Basic Interpersonal Skills, Friendliness). The MOSS showed adequate correlation with sociometric ratings of 39 persons given by staff who knew the individuals well.

Current practice in assessment of social skills in persons with disabilities involves individual target behaviors typically chosen for their face validity. These have included such behaviors as eye contact, appropriate speech content, conversational skills, and appropriate assertion (Bellack, 1979; Matson, DiLorenzo, and Andrasik, 1980; Matson & Ollendick, 1988; Matson et al., 1983; Matson & Hammer, 1996). The SPSS is currently the only available checklist developed for evaluating social functioning in adults with mild or moderate mental retardation (Matson & Hammer, 1996). Thus, the SPSS was utilized for the current study.

Other techniques. Platt and Spivak (1975) developed the technique of Means-End Problem Solving (MEPS), which involves presentation to a subject both a story comprising an interpersonal problem situation and possible solutions. The subject generates steps to link the situation and solutions. Mathias and Nettlebeck (1992) utilized the MEPS with adolescents with mental

retardation. They found the technique to show high interrater ($r=.96$), but lower test-retest reliability ($r=.69$). A variant of the MEPS, the Social Problem Solving Test (SPST), was developed by Castles and Glass (1986). Utilizing the same open-middle format, Castles and Glass obtained comparable psychometrics with mildly and moderately retarded community residents (interrater $r= .93$; test-retest $r=.61$).

Castles and Glass (1986) also developed the Behavioral Social Skills Assessment (BSSA) for use with role-play scenarios. It is comprised of 12 social problem vignettes. A vignette is read to the subject, who is then shown an accompanying videotape enactment. The subject is then asked to respond as if the scenario were present. Psychometric properties of the BSSA were comparable to those of the SPST (Interrater $r=.93$; test-retest $r=.70$).

Relationship of Psychopathology to Social Skills

The development of measures for assessment of social skills and psychopathology in persons with severe mental retardation (Matson, Gardner, Coe & Sovner, 1991; Matson, 1995b) made it possible to examine relationships between these domains. Duncan (1997) made an initial investigation of differences in social skills between individuals with and without specific

maladaptive behaviors. The investigation was intended to identify co-occurring patterns of responding that impact individuals' social functioning. The identification of patterns of responding may lead to social skills training packages tailored to the needs of persons with specific maladaptive behaviors. Such programs may impact the lives of persons with severe mental retardation and challenging behaviors, and lead to more successful community integration.

Duncan (1997) investigated the relationship between self-injurious behavior (SIB), aggression and social skills in 226 persons with severe or profound mental retardation. He used the DASH-II and the Matson Evaluation of Social Skills in Individuals with sEvere Retardation (MESSIER), a standardized measure of social skills for persons with severe or profound mental retardation. Significant differences were identified between both clinical groups and controls. A discriminant functional analysis (DFA) was used to classify group membership (SIB, Aggression, SIB & Aggression, Controls) based on profiles derived from MESSIER scores. The DFA correctly classified 80% of cases. The aggression group had higher scores than SIB on 5 of 6 positive and negative subscales, indicating higher levels of overall activity. The SIB group means had similar trends to the aggression group, but exceeded the aggression group on Negative non-verbal behavior.

Surprisingly, the aggression group mean for positive subscales exceeded the mean for controls.

Matson, Smiroldo et al. (1998) investigated the relationship between psychopathology and social skills in 846 individuals with severe and profound mental retardation utilizing the MESSIER and the DASH-II. Their linear regression analysis indicated that increases in symptoms of psychopathology predicted increases in negative behaviors. Persons with stereotypic movement disorder differed significantly from controls in general positive and positive nonverbal behavior.

RATIONALE FOR THE STUDY

Persons with severe and profound mental retardation and psychopathology evince differing patterns of social skills than persons with comparable mental retardation with no psychopathology (Matson, Smiroldo et al., 1998). Matson and colleagues have made significant efforts to investigate differences in social skills in persons with severe and profound mental retardation (Duncan, 1997; Smiroldo, 1995; LeBlanc, 1996; Rush, 1996).

Researchers have not evaluated comparable relationships in persons with mild and moderate mental retardation. There are several reasons why this has been the case. First, a shift following mandated identification and early intervention for the developmentally delayed population. With finite professional resources to both research and address the needs of persons with disabilities, a large percentage of available resources have in recent years been focused on services for children. Second, a shift in demographics of available research populations. Roughly 40% of all public institutions for persons with mental retardation have closed since 1960 (Lakin, Prouty, Anderson, & Sandlin, 1997). Few persons with mild or moderate mental retardation remain in public institutions; thus, researchers face major challenges identifying

and accessing significant cohorts of individuals with mild or moderate mental retardation for scientific study. Third, a shift in attitude toward research as leading to productive changes in the lives of persons with disabilities. Attempts by "advocacy" groups to re-conceptualize the concept of mental retardation (Luckasson et al., 1992) have resulted in widespread use of non-data based procedures which do not yield information of value to researchers.

This study represents a first attempt to identify relationships between psychopathology and social skills in persons with mild or moderate mental retardation utilizing DSM-IV diagnostic criteria. It is an important initial step in evaluating relationships between mental illness and patterns of behavior which may hinder successful community integration for individuals with mild or moderate mental retardation.

It hopefully adds to the scientific literature by linking current studies on the relationship between psychopathology and social skills to the population of persons with mild and moderate mental retardation. This link is important, given the promise of early work with more severely handicapped individuals. If consistent patterns of behavior can be identified in relating psychopathology and social skills in persons with mild and moderate mental retardation, then treatments to more readily

enable these individuals to achieve increasingly successful community integration may result.

Such identification is crucial at this time, as persons with more politically minded agendas seek to altogether abolish behavioral and other data based treatments for persons with disabilities. Successful skill training and problem remediation need to be publicly related to improvements in quality of life for persons with mental retardation. In this way an empirically based, humane treatment regimen can be demonstrated for the benefit of both persons with disabilities and the taxpayers who support them.

Purpose of the Study

Inferences can be made based on previous research on the relationship of psychopathology to social skills. However, different measures, as well as differences in the populations under investigation, may lead to different outcomes. For example, persons with mild and moderate mental retardation manifest higher levels of verbal and communication skills than those with more severe disabilities. Maladaptive behavior for this higher functioning group often presents as more socially interactive. While self-injury is not as common in this group as in the more severely disabled, aggression is not uncommon. Thus,

identification of patterns of social deficits in persons with a dual diagnosis has implications for development of programs for this population. Identification of consistent patterns of social skills deficits and/or excesses in persons with a dual diagnosis may lead to effective treatments, such as individual or group social skills training packages tailored to the specific needs of this group. Programs of this sort may lead to increasingly successful community integration, improved job functioning, and increased quality of life for persons with mild or moderate mental retardation.

A relationship appears to exist between psychopathology and social skills for persons with mild and moderate mental retardation (Editorial Board, 1996; Matson & Hammer, 1996). However, at present, the establishment of stronger links are needed along with more specifics on the relationship of psychopathology and specific social skills. The ADD is designed to screen for symptoms of DSM-IV disorders identified in persons with mild and moderate mental retardation. Factors on the SPSS are Appropriate Social Skills, Communication Skills, Inappropriate Assertion, and Sociopathic Behavior.

The present study examined 3 questions about the relationship of psychopathology to social skills in persons with

mild and moderate mental retardation. First, do individuals high in psychopathology have different profiles of social skills than those low in psychopathology? Individuals high in psychopathology may have fewer positive skills, and more negative behavior, than persons low in psychopathology. Second, differences in the relationship of psychopathology and social skills were examined in relation to demographic variables. Examples include differences between individuals with mild and moderate mental retardation, females versus males, community versus institutional residents, and young versus old individuals. These could have implications for effective treatment programming. That is, if different demographic groups evince consistent differences in social functioning, this may point to particular needs for basic social skills training. Third, the study examined items on the SPSS which differentiated high from low psychopathology groups. Information regarding differences in social functioning between these groups may be crucial to designing interventions to address social skills deficits in this population.

METHOD

Subjects

Subjects for the present investigation were 127 persons with mild (n= 43, 33.9%) or moderate (n= 84, 66.1%) mental retardation. These individuals ranged from 18 to 80 years of age, and lived in either community placement (n= 44, 34.6%) or a large developmental center in central Louisiana (n=83, 65.4%). Males (n=85, 66.9%) outnumbered females (n=42, 33.1%), and Caucasians (n= 93, 73.2%) were more prevalent than African Americans (n= 34, 26.8%). Subjects were all persons with mild and moderate mental retardation living in a state developmental center in central Louisiana and a cohort of persons with mild or moderate mental retardation living in community placement. Demographic characteristics of the sample are reported in Table 1. For all subjects, the information obtained from facility records was limited to client number (no names were used), age, race, sex, level of mental retardation, ADD scores, and SPSS scores. Informed consent was obtained according to policies of the facilities and of Louisiana State University (LSU).

Raters and Informants

Trained graduate students conducted the assessments under the supervision of a licensed psychologist. Training involved

Table 1
Demographic Variables by Group and Total

		Low Endorse- ment N=42 33.1%	Medium Endorse- ment N=44 34.6%	High Endorse- ment N=41 32.3%	Total Sample N=127 100%
Age					
	Mean	48.15	48.20	44.68	47.04
	SD	15.42	14.51	15.45	15.11
	Range	21- 80	18- 71	18- 78	18- 80
Age group					
	18-29 yrs	5 11.9%	3 6.8%	7 17.1%	15 11.8%
	30-39 yrs	9 21.4%	12 27.3%	11 26.8%	32 25.2%
	40-49 yrs	11 26.2%	9 20.5%	9 22.0%	29 22.8%
	50-59 yrs	5 11.9%	8 18.2%	5 12.2%	18 14.2%
	60+ yrs	12 28.6%	12 27.3%	9 22.0%	33 26.0%
Sex					
	Male	28 66.7%	33 75%	24 58.5%	85 66.9%
	Female	14 33.3%	11 25%	17 41.5%	42 33.1%
Race					
	White	26 61.9%	33 75.0%	34 82.9%	93 73.2%
	Black	16 38.1%	11 25.0%	7 16.1%	34 26.8%
MR level					
	Mild	19 45.2%	12 27.3%	12 29.3%	43 33.9%
	Moderate	23 54.8%	32 72.7%	29 70.7%	84 66.1%
Locat.					
	Large Institution	28 66.7%	34 77.3%	21 51.2%	83 65.4%
	Group Home	14 33.3%	10 22.7%	20 48.8%	44 34.6%

classroom instruction on the instruments, and successful achievement of interrater reliability of .90 or better on three administrations of the instruments. The rater or interviewer was responsible for administering the ADD and the SPSS. Raters were students in the LSU doctoral program in psychology (clinical area) with at least a master's degree. Informants were either Qualified Mental Retardation Personnel (QMRP's) or direct care staff who were acquainted with the individual being evaluated. Informants had a minimum of six months' working knowledge of the subject, defined as having assisted in program development and implementation, client assessments, and staff training.

Measures

The Assessment of Dual Diagnosis (ADD), (Matson, 1997). The ADD is a highly reliable informant report index of symptoms of psychopathology based on DSM-IV criteria. The ADD has shown excellent internal consistency, test-retest, and interrater reliability (Matson & Bamburg, 1998).

Diagnostic categories of the ADD include mania, depression, anxiety, posttraumatic stress disorder, substance abuse, somatoform disorders, dementia, conduct disorder, pervasive developmental disorder, schizophrenia, personality disorders, eating disorders, and sexual disorders. Examples of item include:

(23) Appears sad, lonely, unhappy, hopeless, or pessimistic (Depression); (3) Has difficulty controlling worries (Anxiety); (41) Has recurring thoughts of a traumatic event that he/she experienced (PTSD); (65) Does not seek out others to share interests, activities, or interaction (Pervasive Developmental Disorder).

The Social Performance Survey Schedule (SPSS), (Matson et al., 1984). Adapted from Lowe and Cautela's Social Performance Survey Schedule for use with a population of adults with mild or moderate mental retardation, this informant report instrument is the only reliable checklist developed for assessing social skills in this population (Matson & Hammer, 1996). The SPSS has two positive subscales (Appropriate Social Skills and Communication Skills) and two negative subscales (Inappropriate Assertion and Sociopathic Behavior).

The Appropriate Social Skills subscale addresses components of social responding such as making eye contact when speaking (1), making people laugh (9), complimenting others (37), and directing conversations toward the interests of another (54). The Communication Skills subscale includes items such as initiating contact and conversation with others (6), revealing personal information (14), knowing when to leave people alone (25), and

keeping in touch with friends (35). The Inappropriate Assertion subscale contains items such as interrupts others (10), gets into arguments (21), giving unsolicited advice (24), and complaining (38). The Sociopathic Behavior subscale includes items such as reacts with more anger than a situation calls for (2), takes advantage of others (8), takes or uses things without permission (29), and deceives others for personal gain (53).

RESULTS

Analyses

Demographic variables were analyzed to evaluate possible differences in both psychopathology and social skills in mild vs. moderate mental retardation, community vs. institutional residence, male vs. female, Caucasians versus African Americans, and among different age groups. These analyses utilized one-way ANOVAs. Individuals living in community placement exhibited more psychopathology than individuals in a large institution as reflected in ADD total score ($F= 7.16, p <.01$). No other demographic factors differed statistically on ADD total scores. Results are reported in Table 2.

Table 2
ADD Total Score by Demographic Variables

		ADD Total Score	ADD Standard Deviation
Age group			
	18-29 yrs	$\underline{X}= 13.67$	$\underline{SD}= 12.00$
	30-39 yrs	$\underline{X}= 11.19$	$\underline{SD}= 8.93$
	40-49 yrs	$\underline{X}= 12.14$	$\underline{SD}= 12.61$
	50-59 yrs	$\underline{X}= 12.61$	$\underline{SD}= 10.85$
	60+ yrs	$\underline{X}= 9.67$	$\underline{SD}= 8.81$

(Table con'd.)

Table 2, continued

		ADD Total Score	ADD Standard Deviation
Sex			
	Male	\underline{X} = 10.95	\underline{SD} = 10.01
	Female	\underline{X} = 12.61	\underline{SD} = 11.20
Race			
	White	\underline{X} = 12.32	\underline{SD} = 10.77
	Black	\underline{X} = 9.26	\underline{SD} = 9.12
MR Level			
	Mild	\underline{X} = 10.07	\underline{SD} = 10.50
	Moderate	\underline{X} = 12.24	\underline{SD} = 10.34
Location			
	Large Institution	\underline{X} = 9.75*	\underline{SD} = 8.78
	Group Home	\underline{X} = 14.81*	\underline{SD} = 12.37

*groups differ significantly at $p < .01$

Demographic variables were also analyzed in relation to SPSS subscale scores using Multivariate analyses of variance (MANOVA). No statistically significant differences emerged on subscale scores as a function of age, race, sex, level of mental retardation, or community versus institutional placement. Thus, level of psychopathology did not differ between either persons in different age groups, African Americans and Caucasians, males

Table 3
SPSS Subscale Means by Demographic Variables

		Subscale I Appropriate Social Skills	Subscale II Communicat Skills	Subscale III Inapprop. Assertion	Subscale IV Sociopathic Behavior
Age group					
	18-29 yrs	$\bar{X}= 19.47$ $\bar{SD}=11.70$	$\bar{X}= 33.80$ $\bar{SD}=20.82$	$\bar{X}= 10.13$ $\bar{SD}=11.03$	$\bar{X}= 10.73$ $\bar{SD}=10.50$
	30-39 yrs	$\bar{X}= 21.87$ $\bar{SD}= 9.37$	$\bar{X}= 36.48$ $\bar{SD}=16.46$	$\bar{X}= 12.62$ $\bar{SD}=10.76$	$\bar{X}= 15.09$ $\bar{SD}=13.98$
	40-49 yrs	$\bar{X}= 22.93$ $\bar{SD}= 9.09$	$\bar{X}= 39.31$ $\bar{SD}=15.55$	$\bar{X}= 13.52$ $\bar{SD}=12.66$	$\bar{X}= 11.97$ $\bar{SD}=11.92$
	50-59 yrs	$\bar{X}= 17.83$ $\bar{SD}= 8.39$	$\bar{X}= 31.89$ $\bar{SD}=15.45$	$\bar{X}= 17.44$ $\bar{SD}=12.74$	$\bar{X}= 16.94$ $\bar{SD}=11.53$
	60+ yrs	$\bar{X}= 20.39$ $\bar{SD}= 7.67$	$\bar{X}= 36.03$ $\bar{SD}=12.78$	$\bar{X}= 19.76$ $\bar{SD}=13.57$	$\bar{X}= 19.91$ $\bar{SD}=14.11$
Sex					
	Male	$\bar{X}= 20.96$ $\bar{SD}= 8.96$	$\bar{X}= 36.25$ $\bar{SD}=15.32$	$\bar{X}= 14.11$ $\bar{SD}=12.34$	$\bar{X}= 14.78$ $\bar{SD}=12.82$
	Female	$\bar{X}= 20.69$ $\bar{SD}= 9.42$	$\bar{X}= 35.61$ $\bar{SD}=16.75$	$\bar{X}= 17.02$ $\bar{SD}=12.92$	$\bar{X}= 16.64$ $\bar{SD}=13.70$
Race					
	White	$\bar{X}= 19.99$ $\bar{SD}= 8.29$	$\bar{X}= 35.11$ $\bar{SD}=14.90$	$\bar{X}= 16.33$ $\bar{SD}=13.32$	$\bar{X}= 16.68$ $\bar{SD}=13.36$
	Black	$\bar{X}= 23.29$ $\bar{SD}=10.71$	$\bar{X}= 38.59$ $\bar{SD}=17.85$	$\bar{X}= 11.62$ $\bar{SD}= 9.53$	$\bar{X}= 11.82$ $\bar{SD}=11.79$
MR Level					
	Mild	$\bar{X}= 21.53$ $\bar{SD}= 9.41$	$\bar{X}= 38.00$ $\bar{SD}=17.19$	$\bar{X}= 13.58$ $\bar{SD}=12.58$	$\bar{X}= 14.11$ $\bar{SD}=14.90$
	Moderate	$\bar{X}= 20.54$ $\bar{SD}= 8.94$	$\bar{X}= 35.04$ $\bar{SD}=14.96$	$\bar{X}= 15.83$ $\bar{SD}=12.56$	$\bar{X}= 16.02$ $\bar{SD}=12.11$
Location					
	Large Institution	$\bar{X}= 19.61$ $\bar{SD}= 8.04$	$\bar{X}= 35.53$ $\bar{SD}=14.07$	$\bar{X}= 15.17$ $\bar{SD}=12.54$	$\bar{X}= 15.44$ $\bar{SD}=12.42$
	Group Home	$\bar{X}= 23.35$ $\bar{SD}=10.45$	$\bar{X}= 37.00$ $\bar{SD}=18.63$	$\bar{X}= 14.87$ $\bar{SD}=12.75$	$\bar{X}= 15.25$ $\bar{SD}=14.44$

no groups differ significantly at $p < .01$

and females, moderate and mild mental retardation, or community and institutional placement. Results appear in Table 3.

Next, data from the ADD and SPSS were analyzed by use of MANOVA. For purposes of comparison, ADD scores were divided into terciles to reflect low (Group 1, ADD total score 0-5, $n=42$), medium (Group 2, ADD total 6-12, $n=44$), or high psychopathology (Group 3, ADD total 13 or above, $n=41$), based on endorsement of items indicating symptoms of psychopathology. Nunnally and Bernstein (1994) propose this method of effectively differentiating between individuals at different points of a distribution.

Based on level of psychopathology, significant differences were identified between groups for Appropriate Social Skills ($F=4.93$, $p<.009$), Communication Skills ($F=8.34$, $p<.001$), Inappropriate Assertion ($F=7.97$, $p<.001$), and Sociopathic Behavior ($F=7.21$, $p<.001$). These analyses were followed by ANOVAs with Tukey post-hoc tests to identify specific patterns of significant relationships. Results are reported in Table 4. In general, the High Psychopathology group (Group 3) manifested lower levels of positive social behavior (Appropriate Social Skills and Communication Skills) and higher levels of maladaptive behavior (Inappropriate Assertion and Sociopathic Behavior) than both the Low and Medium Psychopathology groups (Groups 1 & 2).

In Group 1, the 28 highest-endorsed items represented positive items, and 29 of the 31 least-endorsed items represented negative items. Similarly, in Group 2, the 24 most-endorsed items represented positive items, while 29 of the 33 least-endorsed items represented negative items. A different picture was seen in the High Psychopathology group (Group 3), where 16 of the 28 most-endorsed items represented negative items, and 16 of the 29 least-endorsed items represented positive items.

Table 4
SPSS Subscale Scores by Group

	Group 1 Low Psychopathology	Group 2 Medium Psychopathology	Group 3 High Psychopathology
Appropriate Social Skills	\underline{X} = 22.60 ^{a*} \underline{SD} = 10.15	\underline{X} = 22.36 ^{a*} \underline{SD} = 8.08	\underline{X} = 17.51 ^{b*} \underline{SD} = 8.17
Communication Skills	\underline{X} = 40.19 ^{a**} \underline{SD} = 15.54	\underline{X} = 39.10 ^{a**} \underline{SD} = 14.67	\underline{X} = 28.51 ^{b**} \underline{SD} = 14.67
Inappropriate Assertion	\underline{X} = 10.40 ^{a**} \underline{SD} = 9.98	\underline{X} = 13.59 ^{a*} \underline{SD} = 12.62	\underline{X} = 21.44 ^{b**,*} \underline{SD} = 12.53
Sociopathic Behavior	\underline{X} = 9.69 ^{a**} \underline{SD} = 9.69	\underline{X} = 15.18 ^{a,b} \underline{SD} = 13.64	\underline{X} = 21.73 ^{b**} \underline{SD} = 13.37

Different superscripts reflect significant differences at $p < .01^*$ or $p < .001^{**}$

Item Endorsement

Item analysis employed ANOVAs with Tukey post-hoc tests to evaluate statistically significant differences between groups on item endorsement. Numerous items significantly differentiated the groups. On the Appropriate Social Skills subscale, 4 items significantly differentiated the groups. At the $p < .05$ level were item 22 (Remembers and discusses topics previously discussed with others) and item 20 (Asks others how they've been, what they've been up to, etc.). At the $p < .01$ level was item 16 (Is able to make people who are anxious or upset feel better by talking to them). At the $p < .001$ level was item 33 (Gives positive feedback to others). Items which did not differentiate the groups included item 9 (makes other people laugh), item 37 (compliments others), and item 47 (asks if he/she can be of help). Means for significantly different Appropriate Social Skills items appear in Table 5.

Table 5
Significant Appropriate Social Skills Items by Group

Item	Group 1	Group 2	Group 3
16. Is able to make people who are anxious or upset feel better by talking to them.	$\underline{X} = 1.36^{a*}$ $\underline{SD} = 1.46$	$\underline{X} = 1.07^{a,b}$ $\underline{SD} = 1.00$	$\underline{X} = .51^{b*}$ $\underline{SD} = .84$
20. Asks others how they've been, what they've been up to, etc.	$\underline{X} = 2.33^{a,b}$ $\underline{SD} = 1.37$	$\underline{X} = 2.75^a$ $\underline{SD} = 1.22$	$\underline{X} = 2.05^b$ $\underline{SD} = 1.38$

(Table con'd.)

Table 5, continued

Item	Group 1	Group 2	Group 3
22. Remembers and discusses topics previously discussed with others.	\underline{X} = 2.62 ^a \underline{SD} = 1.29	\underline{X} = 2.50 ^{ab} \underline{SD} = 1.15	\underline{X} = 1.88 ^b \underline{SD} = 1.35
33. Gives positive feedback to others.	\underline{X} = 2.10 ^{a**} \underline{SD} = 1.39	\underline{X} = 2.14 ^{a**} \underline{SD} = 1.05	\underline{X} = 1.12 ^{b**} \underline{SD} = 1.27

Different superscripts reflect significant differences at $p < .05$, $*p < .01$, $**p < .001$, or $***p < .0001$

On the Communication Skills subscale, 7 items significantly differentiated the groups. Items significant at the $p < .05$ level were 12 (shows appreciation when someone does something for him/her) and 48 (gets to know people in depth). Items that were significant at the $p < .01$ level were 35 (Keeps in touch with friends) and 43 (Stands up for friends). At the $p < .0001$ level were items 25 (Knows when to leave people alone), 46 (Takes care of others' property as if it were his/her own), and 52 (Keeps commitments he/she makes). Items that did not differentiate the groups included 4 (shows enthusiasm for others' good fortune), 6 (initiates contact and conversation with others), 23 (shows interest in what another is saying), and 55 (tries to help others find solutions to problems they face). Significant items for the Communication Skills subscale are reported in Table 6.

Table 6
Significant Communication Skills Items by Group

Item	Group 1	Group 2	Group 3
12. Shows appreciation when someone does something for him/her.	\underline{X} = 3.07 ^a \underline{SD} = 1.02	\underline{X} = 2.98 ^{a,b} \underline{SD} = 1.05	\underline{X} = 2.41 ^b \underline{SD} = 1.32
25. Knows when to leave people alone.	\underline{X} = 2.71 ^{a***} \underline{SD} = 1.13	\underline{X} = 1.86 ^{b***} \underline{SD} = 1.34	\underline{X} = 1.07 ^{c***} \underline{SD} = 1.15
35. Keeps in touch with friends.	\underline{X} = 1.90 ^{a*} \underline{SD} = 1.46	\underline{X} = 1.98 ^{a*} \underline{SD} = 1.44	\underline{X} = 1.07 ^{b*} \underline{SD} = 1.33
43. Stands up for his/her friends.	\underline{X} = 1.71 ^{a,b} \underline{SD} = 1.44	\underline{X} = 1.95 ^{a*} \underline{SD} = 1.41	\underline{X} = 1.10 ^{b*} \underline{SD} = 1.20
46. Takes care of others' property as if it were his/her own.	\underline{X} = 2.25 ^{a***} \underline{SD} = 1.48	\underline{X} = 2.11 ^{a***} \underline{SD} = 1.32	\underline{X} = .95 ^{b***} \underline{SD} = 1.24
48. Gets to know people in depth.	\underline{X} = 1.62 ^a \underline{SD} = 1.55	\underline{X} = 1.73 ^{a,b} \underline{SD} = 1.35	\underline{X} = 1.00 ^b \underline{SD} = 1.24
52. Keeps commitments he/she makes	\underline{X} = 2.17 ^a \underline{SD} = 1.34	\underline{X} = 1.98 ^{a,b} \underline{SD} = 1.41	\underline{X} = .98 ^b \underline{SD} = 1.17

Different superscripts reflect significant differences at $p < .05$, $*p < .01$, $**p < .001$, or $***p < .0001$

On the Inappropriate Assertion subscale, 8 items significantly differentiated the groups. These included at the $p < .05$ level item 7 (puts self down). At the $p < .01$ level were items 19 (Talks repeatedly about his/her problems and worries), 34 (Dominates conversations), and 38 (Complains). At the $p < .001$ level were items 21 (Gets into arguments) and 31 (Blames others for his/her problems). At the $p < .0001$ level items 10

(Interrupts others) and 27 (Makes embarrassing comments) significantly differentiated the groups. Items which did not differentiate the groups included 24 (gives unsolicited advice) and 26 (directs rather than requests people to do something). Item means for the Inappropriate Assertion subscale appear in Table 7.

Table 7
Significant Inappropriate Assertion Items by Group

Item	Group 1	Group 2	Group 3
7. Puts self down.	$\underline{X} = .21^a$ $\underline{SD} = .47$	$\underline{X} = .32^{ab}$ $\underline{SD} = .83$	$\underline{X} = .76^b$ $\underline{SD} = 1.14$
10. Interrupts others.	$\underline{X} = .81^{a***}$ $\underline{SD} = 1.04$	$\underline{X} = 1.16^{a***}$ $\underline{SD} = 1.40$	$\underline{X} = 2.15^{b***}$ $\underline{SD} = 1.41$
19. Talks repeatedly about his/her problems or worries.	$\underline{X} = .74^{a*}$ $\underline{SD} = 1.17$	$\underline{X} = .91^{a*}$ $\underline{SD} = 1.25$	$\underline{X} = 1.73^{b*}$ $\underline{SD} = 1.70$
21. Gets into arguments.	$\underline{X} = .93^{a**}$ $\underline{SD} = 1.07$	$\underline{X} = 1.43^{ab}$ $\underline{SD} = 1.50$	$\underline{X} = 2.05^{b**}$ $\underline{SD} = 1.28$
27. Makes embarrassing comments.	$\underline{X} = .55^{a***}$ $\underline{SD} = .94$	$\underline{X} = .59^{a***}$ $\underline{SD} = 1.11$	$\underline{X} = 1.68^{b***}$ $\underline{SD} = 1.52$
31. Blames others for his/her problems.	$\underline{X} = .55^{a**}$ $\underline{SD} = 1.27$	$\underline{X} = .82^{a**}$ $\underline{SD} = 1.24$	$\underline{X} = 1.61^{b**}$ $\underline{SD} = 1.50$
31. Dominates conversations.	$\underline{X} = .83^{a*}$ $\underline{SD} = 1.36$	$\underline{X} = 1.27^{a*}$ $\underline{SD} = 1.50$	$\underline{X} = 1.85^{b*}$ $\underline{SD} = 1.53$
38. Complains.	$\underline{X} = 1.02^{a*}$ $\underline{SD} = 1.24$	$\underline{X} = 1.30^{ab}$ $\underline{SD} = 1.53$	$\underline{X} = 2.02^{b*}$ $\underline{SD} = 1.56$

Different superscripts reflect significant differences at $p < .05$, $p < .01^*$, $p < .001^{**}$, or $p < .0001^{***}$

On the Sociopathic Behavior subscale, 10 items significantly differentiated the groups. These included at the $p < .05$ level items 5 (Is aggressive when taking issue with someone), 8 (Takes advantage of others), and 18 (hurts other people while striving to reach his/her goals). At the $p < .001$ level were items 2 (Reacts with more anger than a situation calls for), 15 (Threatens others verbally or physically), and 29 (Takes or uses things that aren't his/hers without permission). At the $p < .0001$ level was item 39 (Easily becomes angry). Items which were not significantly different included 3 (seeks others out too often), 17 (makes others feel he/she is competing with them), and 44 (does not reveal his/her feelings). Significant items for the Sociopathic Behavior subscale are reported in Table 8.

Table 8
Significant Sociopathic Behavior Items by Group

Item	Group 1	Group 2	Group 3
2. Reacts with more anger than a situation calls for.	\underline{X} = 1.05 ^{a**} \underline{SD} = 1.21	\underline{X} = 1.57 ^{a,b} \underline{SD} = 1.50	\underline{X} = 2.27 ^{b**} \underline{SD} = 1.36
5. Is aggressive when taking issue with someone.	\underline{X} = .93 ^a \underline{SD} = 1.24	\underline{X} = 1.48 ^{a,b} \underline{SD} = 1.59	\underline{X} = 1.76 ^b \underline{SD} = 1.41
8. Takes advantage of others.	\underline{X} = .38 ^a \underline{SD} = .79	\underline{X} = .84 ^{a,b} \underline{SD} = 1.22	\underline{X} = .98 ^b \underline{SD} = 1.29

(Table con'd.)

Table 8, continued

Item	Group 1	Group 2	Group 3
11. Seems impatient for others to finish their remarks.	$\underline{X} = .62^{a*}$ $\underline{SD} = 1.03$	$\underline{X} = 1.09^{a,b}$ $\underline{SD} = 1.43$	$\underline{X} = 1.61^{b*}$ $\underline{SD} = 1.50$
15. Threatens others verbally or physically.	$\underline{X} = .76^{a**}$ $\underline{SD} = .98$	$\underline{X} = 1.25^{a,b}$ $\underline{SD} = 1.40$	$\underline{X} = 1.88^{b**}$ $\underline{SD} = 1.52$
18. Hurts other people while striving to reach his/her goals.	$\underline{X} = .31^a$ $\underline{SD} = .78$	$\underline{X} = .50^{a,b}$ $\underline{SD} = 1.00$	$\underline{X} = .83^b$ $\underline{SD} = 1.14$
29. Takes or uses things that aren't his/hers without permission.	$\underline{X} = .31^{a**}$ $\underline{SD} = .68$	$\underline{X} = .61^{a**}$ $\underline{SD} = 1.22$	$\underline{X} = 1.29^{b**}$ $\underline{SD} = 1.33$
39. Easily becomes angry.	$\underline{X} = .83^{a***}$ $\underline{SD} = 1.19$	$\underline{X} = 1.39^{a***}$ $\underline{SD} = 1.38$	$\underline{X} = 2.34^{b***}$ $\underline{SD} = 1.41$
40. Tries to manipulate others to do what he/she wants.	$\underline{X} = .48^{a**}$ $\underline{SD} = .86$	$\underline{X} = 1.16^{b**}$ $\underline{SD} = 1.41$	$\underline{X} = 1.68^{c**}$ $\underline{SD} = 1.52$
41. Allows others to do things for him/her without reciprocating in some way.	$\underline{X} = 1.10^{a**}$ $\underline{SD} = 1.25$	$\underline{X} = .98^{a**}$ $\underline{SD} = 1.25$	$\underline{X} = 1.98^{b**}$ $\underline{SD} = 1.15$

Different superscripts reflect significant differences at $p < .05$, $*p < .01$, $**p < .001$, or

$***p < .0001$

DISCUSSION

A relationship appears to exist between psychopathology and social skills for individuals with mild and moderate mental retardation based on these data. Persons with high levels of symptoms of psychopathology were characterized by lower positive and higher negative social skills than persons with low or medium levels of symptomatology. Numerous items on the SPSS significantly differentiated groups based on endorsement of symptoms of psychopathology on the ADD. Demographic variables did not reveal differential response on SPSS subscales based on race, age, sex, level of mental retardation, or location of residence. These findings will be discussed in greater detail below. The only demographic variable which identified significant differences between groups on ADD total score was the home's location.

Social Skills Differences by Group

The primary hypothesis of the current investigation was supported. Individuals with many symptoms of psychopathology in the present study had fewer positive skills and more negative social behaviors than persons with few symptoms of psychopathology. Groups 1 (Low psychopathology) and 2 (Medium psychopathology) did not differ significantly on any SPSS subscale. Group 3 (High psychopathology) differed significantly from both on

Appropriate Social Skills (lower), Communication Skills (lower), and Inappropriate Assertion (higher). For Sociopathic Behavior, the Low psychopathology group (\bar{x} = 9.69) differed significantly from the High psychopathology group (\bar{x} = 21.73).

Current findings are consistent with Duncan's (1997) study of individuals with severe and profound mental retardation, and with findings of numerous researchers working with persons with schizophrenia (Glynn, 1998). In addition, Matson, Smiroldo et al. (1998) found that increases in symptoms of psychopathology among individuals with severe and profound mental retardation corresponded with increases in negative behavior, as indicated on subscales of the MESSIER. Yet, they found no relationship between symptoms of psychopathology and positive behaviors. Matson, Smiroldo et al. (1998) explained that the general lack of positive social skills seen in persons with severe intellectual disabilities restricts the range of responding for purposes of analysis. In other words, whether an individual in this group has many or few symptoms of psychopathology, they are equally likely to manifest a limited range of positive behaviors, as assessed by the MESSIER. Therefore, it also appears to be the case that social skill profiles of persons with and without dual diagnosis differs by level of mental retardation. These data may necessitate the use of

different assessment and treatment techniques for these populations, as has been hypothesized by some researchers (Matson & Hammer, 1996). This issue certainly warrants further study.

The present study suggests that the greater range of social behavior evinced by persons with mild and moderate mental retardation reflects differences as a function of increased symptomatology. Persons with high levels of psychological symptoms were characterized by significantly lower levels of positive social skills, as reflected in SPSS scores. Given the wider range of positive behavior in individuals with mild or moderate mental retardation, more variability can be seen corresponding to lower or higher levels of psychopathology.

Positive and Negative Behavior

Statistically significant differences were noted in the present study in 10 of 28 positive subscale items (35.1%). For individuals in the high psychopathology group, differences may reflect either skill deficits or performance deficits (Gresham & Reshley, 1988). This distinction is important, as high levels of psychopathology (e.g., anxiety symptoms) may be indicative of performance difficulties. Further research should clarify this issue.

Significant differences in endorsement were noted for 18 of 29 items (62.1%) on items comprising the negative subscales (Inappropriate Assertion and Sociopathic Behavior). These items reflect a wide variety of behavior that most people would find very distressing in an interpersonal context. Persons with an absence of positive skills may not be noticed, but the presence of these negative behaviors reflects a strong need for appropriate intervention.

Duncan (1997) found that dually diagnosed individuals with severe and profound mental retardation present different patterns of social skills than persons with severe and profound mental retardation evincing no identified psychopathology. Persons with high aggression scored above control subjects on not only all negative subscales, but all positive subscales as well. The present study is not directly comparable, as no specific diagnostic groups were used. But the present study found increased levels of symptomatology to coincide with higher levels of negative items, and lower levels of positive skills.

In addition, several researchers (Kazdin, Matson, & Esveltd-Dawson, 1981; Gresham & Stuart, 1992) have indicated that presence of both high positive and high negative behaviors corresponds with peer rejection. Thus, improvements in positive

behavior without corresponding improvements in negative behavior may not permit persons with disabilities sufficient access to normal contingencies of social reinforcement.

Researchers have noted relationships between negative behavior and social skills in persons with schizophrenia (Muesser, Bellack, Morrison, & Wixted, 1990; Penn, Muesser, Spalding, Hope, & Reed, 1995). However, differences in persons with mental retardation and persons with schizophrenia make direct comparisons difficult. Some persons with schizophrenia evince adequate social skills, or may even be characterized as having social skills strengths (Mueser & Bellack, 1998). Yet, the same is not true for persons with mental retardation. Social skills deficits are ubiquitous among persons with mental retardation. In addition, persons with schizophrenia may manifest differing social skills at different phases of the illness. Social skills of persons with mental retardation reflect lower than average baseline performance across both time and situations.

Taking positive and negative behaviors together, individuals with mental retardation in the current study who evince many symptoms of psychopathology tended to be less likely to initiate positive interactions, inquire into another's feelings, give positive feedback, or be able to comfort others. They were less likely to get

to know people in depth, keep in touch with or stand up for friends, keep commitments, show appreciation, or know when to leave others alone. Also, these persons were more likely to put themselves down, interrupt, argue, complain, talk about problems, blame others for their problems, and make embarrassing comments. They were more likely to react with more anger than a situation calls for, take advantage of others, threaten others, be aggressive when taking issue with someone, get angry, try to manipulate others, or take or use things that aren't theirs without permission.

From this list of social behavior, many possible targets for social skills training may be identified. Taken as a whole, the picture which emerges from the present study is that irrespective of demographic factors, persons who exhibit many symptoms of psychopathology evince significant limitations in social responding. This result is consistent with findings of Bellack, Morrison, Wixted, and Mueser (1990), who noted a relationship between severity of psychopathology and social skills.

Individuals with mental retardation and high levels of psychopathology present many needs for skill acquisition and training. Social skills training has been shown to be applicable to skills training in persons with psychopathology including

schizophrenia, depression, and social anxiety (Bellack et al, 1976; Hersen & Bellack, 1976; Matson, 1978; Helsel & Matson, 1988; Marchetti & Campbell, 1990). While historical trends of over-medicating behavioral excesses are slowly declining, excessive medication is still far too prevalent a treatment for behavior problems in both institutional and community settings (Fredericks & Hayes, 1995).

Demographic Variables

It was hypothesized that differences in social skills performance would emerge among various demographic variables. The present work found no statistically significant difference between any specific demographic variable and social skills, as assessed by the SPSS. Variables included age, sex, race, level of mental retardation, and community versus institutional placement.

While items on the SPSS are characteristic of persons of varying ages, none differentially characterizes a particular age group. Hence it is unsurprising that no differences were noted by age group. That is, no items appear to be age-specific. Likewise, none of the SPSS items are gender-specific. Thus, we would expect no differences among individuals with mental retardation based on sex. Females in the present sample scored slightly higher than

males on positive subscales, and slightly lower on negative subscales. While this result is interesting, it did not reach statistical significance. Further research is needed to clarify possible differences.

In the same way, no items appear to be specific to race or level of mental retardation. It is therefore not surprising that no differences in social skills were noted in the current study by race or level of mental retardation.

It might have been expected that individuals with mental retardation living in the community possessed better social skills than those living in institutional placement. However, no statistically significant differences were observed in social skills as a function of residence. These findings may be related more to the policy of de-institutionalization than to an individual's ability to function effectively in the community.

Recent outplacement emphasis has seen many persons moved from institutions to the community. Thus, the current sample may be more homogenous than might have been seen in previous years. Outplacement is by policy unrelated to an individual's ability to function in the community. For this reason, many persons with a limited base of social skills are placed in community settings. Thus it is crucial that assessment

instruments such as the SPSS and the MESSIER be widely utilized to ensure that deficits in social functioning are identified and addressed.

Social skills training may be even more crucial for persons in community placement than for those in developmental centers. The majority of persons in the community are not trained to deal effectively with behavior problems in persons with disabilities. This may result in their avoiding persons with disabilities after encountering problem behavior. Thus, future opportunities for persons in community placement may be more negatively impacted by behavioral deficits and excesses which reduce community opportunities for more normalized social functioning.

No differences in social skills were identified based on level of mental retardation. This result makes sense in light of both the construction of the SPSS and current progress in efforts to define mental retardation. First, Matson et al. (1984) utilized items from the Social Performance Survey Schedule identified by experts as applicable to persons with mild or moderate mental retardation. They stated no objective of identifying items which distinguished mild from moderate mental retardation. Indeed, based on recently published guidelines of behavior characterizing young persons with mental retardation (Editorial Board, 1996), it may be that no

single behavior clearly differentiates mild from moderate mental retardation.

It may be more likely that what distinguishes mild from moderate mental retardation is not an isolated behavior, but a pattern of behavior that consistently covaries. This seems reasonable, as clinical lore is replete with descriptions of behavior which correspond to mild and moderate mental retardation for at least the past 150 years. To statistically distinguish meaningful group differences between persons with mild and moderate mental retardation will likely require the use of cluster analysis of a large population of subjects.

The significance of the present study is in identifying patterns of social skills in persons with high levels of psychopathological symptoms. It represents a first step toward development of specific interventions to address the needs of this under-served population. The present study permits no evaluation of causal relationships between psychopathology and social skills. Current data is correlational in nature. Whether there is a causal relationship between the two, or what such a relationship might be, must await further study. Yet, the current work identifies concurrent deficits in social responding and excesses of psychopathological symptoms. Though findings of the present

study may be considered to be exploratory in nature, they represent an important first step in identifying relationships between psychopathology and social skills in persons with mild and moderate mental retardation. Interventions designed to address the specific social skills needs of such persons will represent a significant advance in social skills training. Further studies are needed to clarify this relationship.

REFERENCES

Aman, M. G. (1991). Assessing psychopathology and behavior problems in persons with mental retardation: A review of available instruments. Rockville, MD: U.S. Department of Health and Human Services.

Aman, M. G. & Singh, N. N. (1987). Aberrant Behavior Checklist Manual. East Aurora, NY: Slosson Educational.

Aman, M. G., Singh, N. N., Stewart, A. W. & Field, C. J. (1985). Psychometric characteristics of the Aberrant Behavior Checklist. American Journal of Mental Deficiency, 89, 492-502.

Aman, M. G., Watson, J. E., Singh, N. N., Turbott, S. H. & Wilsher, C. P. (1986). Psychometric and demographic characteristics of the psychopathology instrument for mentally retarded adults. Psychopathology Bulletin, 4, 1072-1075.

American Association for the Study of the Feeble-Minded (1921). Statistical Manual for the Use of Institutions for the Feeble-Minded. New York: 1921.

Andrasik, F., & Matson, J. M. (1984). Social skills with the mentally retarded. In M. A. Milan & L. L. Abate (Eds.), Handbook of Social Skills Training and Research. New York: John Wiley & Sons.

APA (1952). Diagnostic and Statistical Manual of Mental Disorders. Washington, DC: American Psychiatric Association.

APA (1968). Diagnostic and Statistical Manual of Mental Disorders, Second Edition. Washington, DC: American Psychiatric Association.

APA (1980). Diagnostic and Statistical Manual of Mental Disorders, Third Edition. Washington, DC: American Psychiatric Press.

APA (1987). Diagnostic and Statistical Manual of Mental Disorders, Third Edition (Revised). Washington, DC: American Psychiatric Press.

APA (1994). Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington: American Psychiatric Association.

Arthur, G. (1947). Pseudo-feeble-mindedness. American Journal of Mental Deficiency, 52, 137-142.

Bellack, A. S. (1979). A critical appraisal of strategies for assessing social skill. Behavioral Assessment, 1, 157-176.

Bellack, A. S., Hersen, M., & Turner, S. M. (1976). Generalized effects of social skills training in chronic schizophrenics: An experimental analysis. Behaviour Research and Therapy, 14, 391-398.

Bellack, A. S., Morrison, R. L., Wixted, J. T., & Mueser, K. T. (1990). An analysis of social competence in schizophrenia. British Journal of Psychiatry, 156, 809-818.

Benson, B. A. (1985). Behavior disorders and mental retardation: Associations with age, sex, and level of functioning in an outpatient clinic sample. Applied Research in Mental Retardation, 6, 79-85.

Borthwick-Duffy, S. A. (1994). Epidemiology and prevalence of psychopathology in people with mental retardation. Journal of Consulting and Clinical Psychology, 62, 17-27.

Borthwick-Duffy, S. A. & Eyman, R. K. (1990). Who are the dually diagnosed? American Journal on Mental Retardation, 94, 586-595.

Bruininks, R. H., Hill, B. K., Weatherman, R. F., & Woodcock, R. W. (1986). Inventory for Client and Agency Planning. Chicago: Riverside.

Bullock, M. J., Ironsmith, M., & Poteat, G. M. (1988). Sociometric techniques with young children: A review of psychometrics and classification schemes. School Psychology Review, 17, 289-303.

Bye, L. & Jussim, L. (1993). A proposed model for the acquisition of social knowledge and social competence. Psychology in the Schools, 30, 143-161.

Castles, E. E. & Glass, C. R. (1986). Empirical generation of measures of social competence for mentally retarded adults. Behavioral Assessment, 8, 319-330.

Cavell, T. A. (1990). Social adjustment, social performance, and social skills: A tri-component model of social competence. Journal of Consulting and Clinical Psychology, 19, 111-122.

Chess, S. (1977). Evolution of behavior disorder in a group of mentally retarded children. Journal of the American Academy of Child Psychiatry, 16, 5-18.

Christoff, K. A. & Kelly, J. A. (1985). A behavioral approach to social skills training with psychiatric patients. In L. L'abate & M. Milan (Eds.), Handbook of Social Skills Training and Research (pp. 361-387). New York: John Wiley & Sons.

Combs, M. L. & Slaby, D. A. (1977). Social skills training with children. In B. B. Lahey & A. E. Kazdin (Eds.), Advances in Child Clinical Psychology (Vol. 1, pp. 161- 201). New York: Plenum.

Cone, J. (1987). Behavioral assessment with children and adolescents. In M. Hersen & V. Van Hasselt (Eds.) Behavior Therapy with Children and Adolescents: A Clinical Approach. New York: John Wiley & Sons.

Conley, R. W. (1985). Impact of federal programs on employment of mentally retarded persons. In Lakin, K. C. & Bruininks, R. H., (Eds.), Strategies for Achieving Community Integration of Developmentally Disabled Citizens. Baltimore: Paul H. Brookes.

Crews, W. D., Bonaventure, S. & Rowe, F. (1994). Dual diagnosis: Prevalence of psychiatric disorders in a large state residential facility for individuals with mental retardation. American Journal on Mental Retardation, 98, 724-731.

Curran, J. P. (1979a). Social skills: Methodological issues and future directions. In A. S. Bellack & M. Hersen (Eds.), Research and Practice in Social Skills Training (pp. 319-354). New York: Plenum Press.

Curran, J. P. (1979b). Pandora's box reopened? The assessment of social skills. Journal of Behavioral Assessment, 1, 55-71.

Doll, E. A. (1935). The measurement of social competence. Journal of Psycho-Asthenics, 40, 103-126.

Doll, E. A. (1936). Current thoughts on mental deficiency. Journal of Psycho-Asthenics, 41, 32-49.

Doll, E. A. (1941). The essentials of an inclusive concept of mental deficiency. American Journal of Mental Deficiency, 46, 214-219.

Doll, E. A. (1947). Is mental deficiency curable? American Journal of Mental Deficiency, 51, 420-428.

Dosen, A. (1993). Diagnosis and treatment of psychiatric and behavioural disorders in mentally retarded individuals: The state of the art. Journal of Intellectual Disability Research, 37, S1-7.

Duncan, D. (1997). Relationship of Self-Injurious Behavior and Aggression to Social Skills in Persons with Severe and Profound Mental Retardation. Louisiana State University, unpublished doctoral dissertation.

Duncan, P. M. & Millard, W. (1866). A Manual for the Classification, Training, and Education of the Feeble-Minded, Imbecile, and Idiotic. London: Longmans, Green, & Co.

Eaton, L. F. & Menolascino, F. J. (1982). Psychiatric disorders in the mentally retarded: Types, problems, and challenges. American Journal of Psychiatry, 139, 1297-1303.

Eckman, P. & Friesen, W. V. (1975). Unmasking the Face. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Eckman, P. & Friesen, W. V. (1976). Pictures of Facial Affect. Palo Alto, CA: Consulting Psychologists Press.

Eckman, P. & Friesen, W. V. (1978). The Facial Action Coding system (FACS): A Technique for the measurement of Facial Action. Palo Alto, CA: Consulting Psychologists Press.

Editorial Board of the APA Division 33 (1996). Definition of Mental Retardation. In J. W. Jacobson & J. A. Mulick (Eds.) Manual of Diagnosis and Professional Practice in Mental Retardation. Washington, DC: American Psychological Association.

Einfeld, S. L. & Aman, M. (1995). Issues in the taxonomy of psychopathology in mental retardation. Journal of Autism and Developmental Disorders, 25, 143-167.

Ellis, W.J. (1933). The Handicapped Child: Report of the Committee on Physically and Mentally Handicapped of the White House Conference on Child Health and Protection. New York: The Century Company.

Ewalt, J. R. (1972). Differing concepts of diagnosis as a problem in classification. American Journal of Psychiatry, 128 (supplement), 18-20.

Farrar-Schneider, D. (1995). A Social Skills Measure for Adults with Mild or Moderate Mental Retardation: Development of the Measure of Observable Social Skills (MOSS). Unpublished doctoral dissertation, Louisiana State University, Baton Rouge, LA.

Fingeret, A. L., Monti, P. M. & Paxson, M. (1983). Relationships among social perception, social skill, and social anxiety of psychiatric patients. Psychological Reports, 53, 1175-1178.

Foster, S. & Ritchey, W. L. (1979). Issues in the assessment of social competence in children. Journal of Applied Behavior Analysis, 12, 625-638.

Frankel, E. (1937). The need for standardization of laws governing the mentally deficient. The Journal of Psycho-Asthenics, 42, 67-77.

Fredericks, D. W. & Hayes, L. J. (1995). Effects of drug changes and physician prescribing practices on the behavior of persons with intellectual disability. Journal of Development and Physical Disabilities, 7, 105-122.

Friedman, D. L., Kastner, T., Plummer, A. T., Ruiz, M. Q., & Henning, D. (1992). Adverse behavioral effects in individuals with mental retardation and mood disorders treated with carbamazepine. American Journal on Mental Retardation, 96, 541-546.

Gettinger, M., & Kratochwill, T. R. (1987). Behavioral assessment. In C. L. Frame & J. L. Matson (Eds.), Handbook of Assessment in Childhood Psychopathology (pp. 131-161). New York: Plenum Press.

Gibson, F. W., Jr., Lawrence, P. S., & Nelson, R. O. (1976). Comparison of three training procedures for teaching social responses to developmentally disabled adults. American Journal of Mental Deficiency, 81, 379-387.

Glick, M. & Zigler, E. (1995). Developmental differences in the symptomatology of psychiatric inpatients with and without mental retardation. American Journal on Mental Retardation, 99, 407-417.

Glynn, S. M. (1998). Psychopathology and social functioning in schizophrenia. In K. T. Mueser & N. Tarrier (Eds.) Handbook of Social Functioning in Schizophrenia. Boston: Allyn & Bacon.

Goddard, H. H. (1920). Human Efficiency and Levels of Intelligence. Princeton: Princeton University Press.

Goddard, H. H. (1921). Abnormal psychology and the study of the subnormal mind. Journal of Abnormal Psychology, 54, 47-50.

Goddard, H. H. (1928). Feeble-mindedness: A question of definition. Journal of Psycho-Asthenics, 33, 219-227.

Gresham, F. M. (1981). Assessment of children's social skills. Journal of School Psychology, 19, 120-133.

Gresham, F. M. (1986). Conceptual issues in the assessment of social competence in children. In P. Strain, M. Guralnick, & H. Walker (Eds.), Children's Social Behavior: Development, Assessment, and Modification. New York: Academic Press.

Gresham, F. M. & Cavell, T. C. (1990). Assessment of adolescent social skills. In R. G. Harrington (Ed.), Testing Adolescents. Kansas City, MO: Test Corporation of America.

Gresham, F. M. & Elliott, S. N. (1984). Assessment and classification of children's social skills: A review of methods and issues. School Psychology Review, 13, 292- 301.

Gresham, F. M., MacMillan, D. L., & Siperstein, G. N. (1995). Critical analysis of the 1992 AAMR definition: Implications for school psychology. School Psychology Quarterly, 10, 1-19.

Gresham, F. M. & Reschly, D. J. (1988). Issues in the conceptualization, classification, and assessment of social skills in the mildly handicapped. In T. Kratochwill (Ed.), Advances in School Psychology (pp. 203-247). Hillsdale, NJ: Lawrence Erlbaum.

Gresham, F. M. & Stuart, D. (1992). Stability of sociometric assessment: Implications for uses as selection and outcome measures in social skills training. Journal of School Psychology, 30, 223- 231.

Grossman H. J., (Ed). (1973). Manual on Terminology and Classification in Mental Retardation. Washington, DC: American Association on Mental Retardation.

Grossman H. J., (Ed). (1977). Manual on Terminology and Classification in Mental Retardation. Washington, DC: American Association on Mental Retardation.

Grossman H. J., (Ed). (1983). Manual on Terminology and Classification in Mental Retardation. Washington, DC: American Association on Mental Retardation.

Gumpel, T. (1994). Social competence and social skills training for persons with mental retardation: An expansion of a behavioral paradigm. Education and Training in Mental Retardation and Developmental Disabilities, 29, 194-201.

Haines, T. H. (1930). Understanding the feeble-minded. Journal of Psycho-Asthenics, 25, 325-339.

Hamilton, M. L. (1995). A Normative Study of the Diagnostic Assessment for the Severely Handicapped (DASH) Scale.

Unpublished doctoral dissertation, Louisiana State University, Baton Rouge, LA.

Heber, R. (1959). Manual on terminology and classification in mental retardation. American Journal of Mental Deficiency, 64, Monograph supplement.

Heber, R. (1961). A Manual on Terminology and Classification in Mental Retardation. Washington, DC: American Association on Mental Deficiency.

Helsel, W. J. & Matson, J. M. (1988). The relationship of depression to social skills and intellectual functioning in mentally retarded adults. Journal of Mental Deficiency Research, 32, 411-418.

Hersen, M., & Bellack, A. S. (1976a). A multiple baseline analysis of social skills training in chronic schizophrenics. Journal of Applied Behavior Analysis, 9, 239-245.

Hersen, M. & Bellack, A. S. (1976b). Social skills training for chronic psychiatric patients: Rationale, research findings and future directions. Comprehensive Psychiatry, 17, 559-580.

Hersen, M., Eisler, R. M., & Miller, P. M. (1973). Development of assertive responses: Clinical measurement and research considerations. Behaviour Research and Therapy, 11, 505-521.

Humphrey, E. J. 1936. Developmental deficiencies as the essential problem in mental deficiency., Journal of Psycho-Asthenics, 41, 215-224.

Iverson, J. C. & Fox, R. A. (1989). Prevalence of psychopathology among mentally retarded adults. Research in Developmental Disabilities, 10, 77-83.

Jacobson, J. W. (1982). Problem behavior an psychiatric impairment within a developmentally disabled population: 1. Behavior frequency. Applied Research in Mental Retardation, 3, 121-139.

Jacobson, J. W. (1990). Do some mental disorders occur less frequently among persons with mental retardation? American Journal on Mental Retardation, 94, 596-602.

James, W. (1910). The Principles of Psychology (Vol. 2). New York: Henry Holt and Company.

Joint (Wood) Committee on Mental Deficiency. (1929). Report of the Mental Deficiency Committee. London: H.M. Stationery Office.

Kalachnik, J. E., Hanzel, T. E., Harder, S. R., Bauernfeind, J. D., & Engstrom, E. A. (1995). Antiepileptic drug behavioral side effects in individuals with mental retardation and the use of behavioral measurement techniques. Mental Retardation, 33, 374-382.

Kanner, Leo. (1948). Feeble-mindedness: Absolute, relative, and apparent. The Nervous Child, 7, 365-397.

Kanner, Leo. (1964). A History of the Care and Study of the Mentally Retarded. Springfield, Illinois: Charles C. Thomas.

Kazdin, A. E. & Matson, J. L. (1981). Social validation in mental retardation. Applied Research in Mental Retardation, 2, 39-53.

Kelly, J. A. (1982). Social Skills Training: A Practical Guide for Interventions. New York: Springer.

Kennedy, J.H. (1988). Issues in the identification of socially incompetent children. School Psychology Review, 17, 276-288.

Kuhlman, F. (1941). Definition of mental deficiency. American Journal of Mental Deficiency, 46, 206-213.

Lakin, K. C., Prouty, B., Anderson, L., & Sandlin, J. (1997). Nearly 40% of state institutions have been closed. Mental Retardation, 18, 65-67.

Leblanc, L. (1996). Social skills in adults with severe disabilities. Louisiana State University: unpublished doctoral dissertation.

Levitan, G. & Reiss, S. (1983). Generality of diagnostic overshadowing across disciplines. Applied Research in Mental Retardation, 4, 59-64.

Lewis, E. O. (1933). Types of mental deficiency and their social significance. Journal of Mental Science, 79, 298-304.

Libet, J. M. & Lewinsohn, P. M. (1973). Concept of social skills with special reference to the behavior of depressed persons. Journal of Consulting and Clinical Psychology, 40, 304-312.

Love, S. R. & Matson, J. L. (1990). Diagnostic instruments for depression in the mentally retarded. In A. Dosen & F. J. Menolascino (Eds.), Depression in Mentally Retarded Children and Adults. Leiden, the Netherlands: Logon Publications.

Lowe, M. R. (1985). Psychometric evaluation of the Social Performance Survey Schedule: Reliability and validity of the positive behavior subscale. Behavior Modification, 9, 193-210.

Lowe, M. R. & Cautela, J. R. (1978). A self-report measure of social skill. Behavior Therapy, 9, 535-544.

Luckasson, R., Coulter, D. L., Polloway, E. A., Reiss, S., Schalock, R. L., Snell, M. E., Spitalnik, D. M., & Stark, J. A. (1992). Mental Retardation: Definition, Classification, and Systems of Support. Washington: American Association on Mental Retardation.

Lurie, L. A. (1946). The medical concept of feeble-mindedness. American Journal of Mental Deficiency, 50, 512-515.

Maclean, Jr., W. E. (1993). Overview. In J. L. Matson, & R. P. Barrett (Eds.) Psychopathology in the Mentally Retarded. (pp. 1-16). Boston: Allyn and Bacon.

Manikam, R., Matson, J. L., Coe, D. A. & Hillman, N. (1995). Adolescent depression: Relationships of self-report to intellectual and adaptive functioning. Research in Developmental Disabilities, 16, 349-364.

Marchetti, A. G. & Campbell, V. A. (1990). Social Skills. In J. L. Matson (Ed.), Handbook of Behavior Modification with the Mentally Retarded (2nd Ed.). New York: Plenum.

Mathias, J. L., & Nettlebeck, T. (1992). Validity of Greenspan's models of adaptive and social intelligence. Research in Developmental Disabilities, 13, 113-129.

Matson, J. L. (1982). Independence training vs. Modeling procedures for teaching phone conversation skills to the mentally retarded. Behaviour Research and Therapy, 20, 505- 511.

Matson, J. L. (1985). Biosocial theory of psychopathology: A three by three factor model. Applied Research in Mental Retardation, 6, 199-227.

Matson, J. L. (1995a). Comments on Gresham, MacMillan, and Siperstein's paper "Critical analysis of the 1992 AAMR definition: Implications for school psychology". School Psychology Quarterly, 10, 20- 23.

Matson, J. L. (1995b). Matson Evaluation of Social Skills for Individuals with sEvere Retardation (MESSIER). Baton Rouge: Scientific Publishers, Inc.

Matson, J. L. (1997). Assessment of Dual Diagnosis Manual. Baton Rouge: Scientific Publishers, Inc.

Matson, J. L. & Adkins, J. (1980). A self-instructional social skills training program for mentally retarded persons. Mental Retardation, 18, 245-248.

Matson, J. L. & Barrett R. P. (1993). Psychopathology in the Mentally Retarded. Boston: Allyn and Bacon.

Matson, J. L., Baglio, C., Smiroldo, B. B., Hamilton, M. L., Packlowskyj, D., Williams, D. & Kirkpatrick-Sanchez, S. (1996). Characteristics of autism as assessed by the Diagnostic Assessment of the Severely Handicapped - II (DASH-II). Research in Developmental Disabilities, 17, 135-143.

Matson, J. L. & Bamburg, J. W. (1998). Reliability of the Assessment of Dual Diagnosis (ADD). Research in Developmental Disabilities, 19, 89-95.

Matson, J. L., Coe, D. A., Gardner, W. I., & Sovner, R. (1991). A factor analytic study of the Diagnostic Assessment for

the Severely Handicapped scale. The Journal of Nervous and Mental Disease, 179, 553-557.

Matson, J. L., DiLorenzo, T., & Andrasik, F. (1980). A review of behavior modification procedures for treating social skill deficits and psychiatric disorders of the mentally retarded. In J. L. Matson & F. Andrasik (Eds.), Treatment Issues and Innovations in Mental Retardation. New York: Plenum Press.

Matson, J. L., DiLorenzo, T., & Andrasik, F. (1982). Behavior modification procedures for treating social skills deficits and psychiatric disorders of the mentally retarded. In J. L. Matson & F. Andrasik (Eds.), Treatment Issues and Innovations in Mental Retardation. New York: Plenum.

Matson, J. L. & Earnhart, T. (1981). Programming treatment effects to the natural environment: A procedure for training institutionalized retarded adults. Behavior Modification, 5, 27-37.

Matson, J. L., Gardner, W. I., Coe, D. A., & Sovner, R. (1991). A scale for evaluating emotional disorders in severely and profoundly mentally retarded persons: Development of the Diagnostic Assessment for the Severely Handicapped (DASH) Scale. British Journal of Psychiatry, 159, 404-409.

Matson, J. L., Hamilton, M. L., Duncan, D., Bamburg, J. W., Smiroldo, B. B., Anderson, S. J., Baglio, C., Williams, D. & Kirkpatrick-Sanchez, S. (1997). Characteristics of stereotypic movement disorder and self-injurious behavior assessed with the Diagnostic Assessment of the Severely Handicapped (DASH-II). Research in Developmental Disabilities, 18, 457-469.

Matson, J. L. & Hammer, D. (1996). Assessment of social functioning. In J. W. Jacobson & J. A. Mulick (Eds.) Manual of Diagnosis and Professional Practice in Mental Retardation. Washington, DC: American Psychological Association.

Matson, J. L., Helsel, W. J., Bellack, A. S. & Senatore, V. (1983). Development of a rating scale to assess social skill deficits in mentally retarded adults. Applied Research in Mental Retardation, 4, 399-407.

Matson, J. L., Kazdin, A. E., & Esveldt-Dawson, K. (1980). Training interpersonal skills among mentally retarded and socially

dysfunctional children. Behaviour Research and Therapy, 18, 419-428.

Matson, J. L., Kazdin, A. E., & Senatore, V. (1984a). Psychometric properties of the Psychopathology Instrument for Mentally Retarded Adults. Applied Research in Mental Retardation, 5, 81-89.

Matson, J. L., Kazdin, A. E., & Senatore, V. (1984b). Diagnosis and drug use in mentally retarded, emotionally disturbed adults. Applied Research in Mental Retardation, 5, 513-519.

Matson, J. L., Kiely, S. L. & Bamburg, J. W. (1997). The effect of stereotypes on adaptive skills as assessed with the DASH-II and the Vineland Adaptive Behavior Scales. Research in Developmental Disabilities, 18, 471-476.

Matson, J. L. & Ollendick, T. H. (1976). Elimination of low frequency biting. Behavior Therapy, 7, 410-412.

Matson, J. L. & Ollendick, T. H. (1988). Enhancing Children's Social Skill: Assessment and Training. New York: Pergamon.

Matson, J. L. & Senatore, V. (1981). A comparison of traditional psychotherapy and social skills training for improving interpersonal functioning of mentally retarded adults. Behavior Therapy, 12, 369- 382.

Matson, J. L. & Sevin, J. A. (1994). Theories of dual diagnosis in mental retardation. Journal of Consulting and Clinical Psychology, 62, 6-16.

Matson, J. L., Smiroldo, B. B., & Bamburg, J. W. (1998). The relationship of psychopathology to social skills in persons with severe and profound mental retardation. Journal of Intellectual Disability Research, 23, 137-145.

Matson, J. L. & Smiroldo, B. B. (1997). Validity of the mania subscale of the Diagnostic Assessment of the Severely Handicapped (DASH-II). Research in Developmental Disabilities, 18, 1-5.

Matson, J. L., Smiroldo, B. B. & Hastings, T. L. (1998). Validity of the Autism/Pervasive Developmental Disorders subscale of the Diagnostic Assessment of the Severely Handicapped - II. Journal of Autism and Developmental Disorders, 28, 77-81.

Matson, J. L., Smiroldo, B. B., Hamilton, M. L. & Baglio, C. (1997). Do anxiety disorders exist in persons with severe and profound mental retardation? Research in Developmental Disabilities, 18, 39-44.

Matson, J. L. & Stephens, R. M. (1978). Increasing appropriate behavior of explosive chronic psychiatric patients with a social skills training package. Behavior Modification, 2, 61-76.

McCulloch, T. L. (1947). Reformulation of the problem of mental deficiency. American Journal of Mental Deficiency, 52, 130-136.

McFall, R. M. (1982). A review and reformulation of the concept of social skills. Behavioral Assessment, 4, 1-33.

McFall, R. M. & Littlesand, D. B. (1971). Behavior rehearsal with modeling and coaching in assertion training. Journal of Abnormal Psychology, 77, 313- 323.

McFall, R. M. & Marston, A. R. (1970). An experimental investigation of behavior rehearsal in assertion training. Journal of Abnormal Psychology, 76, 295- 303.

Menolascino, F. J. (1965). Emotional disturbance and mental retardation. American Journal of Mental Deficiency, 70, 248-256.

Menolascino, F. J. (1990). The nature and types of mental illness in the mentally retarded. In M. Lewis & S. Miller (Eds.) Handbook of Developmental Psychopathology. New York: Plenum Press.

Miller, L. S. & Funabiki, D. (1984). Predictive validity of the Social Performance Survey Schedule for component interpersonal behaviors. Behavioral Assessment, 6, 33-44.

Muench, G. A. (1944). A follow-up of mental defectives after eighteen years. Journal of Abnormal Social Psychology, 39, 407-418.

Mueser, K. T. & Bellack, A. S. (1998). Social skills and social functioning. In K. T. Mueser & N. Tarrier (Eds.) Handbook of Social Functioning in Schizophrenia. Boston: Allyn & Bacon.

Mueser, K. T., Bellack, A. S., Morrison, R. L., & Wixted, J. T. (1990). Social competence in schizophrenia: Premorbid adjustment, social skill, and domains of functioning. Journal of Psychiatry Research, 24, 51-63.

Myers, B. A. (1986). Psychopathology in hospitalized developmentally disabled individuals. Comprehensive Psychiatry, 27, 115-126.

Myers, B. A. (1987). The mini-mental state in those with developmental disabilities. The Journal of Nervous and Mental Disease, 175, 85-89.

Nezu, C. M., Nezu, A. M., & Gill-Weiss, M. J. (1992). Psychopathology in persons with mental retardation: Clinical guidelines for assessment and treatment. Champaign, IL: Research Press.

Nihira, K., Foster, R., Shelhaas, M. & Leland, H. (1974). AAMR Adaptive Behavior Scale. Washington: American Association on Mental Retardation.

Nirje, B. (1969). The normalization principle—implications and comments. Journal of Mental Subnormality, 16, 62-70.

Nowrey, J. E. (1945). A brief synopsis of mental deficiency. American Journal of Mental Deficiency, 49, 319-357.

Nunnally, J. C. & Bernstein, I. H. (1994). Psychometric Theory (3rd ed.) New York: McGraw-Hill.

Oden, S. (1980). A child's social isolation: Origins, prevention, intervention. In G. Cartledge & J. F. Milburn (Eds.) Teaching Social Skills to Children. New York: Pergamon.

Paclawskyj, D., Matson, J. L., Bamburg, J. W. & Baglio, C. (1997). A comparison of the Diagnostic Assessment of the Severely Handicapped - II (DASH-II) and the Aberrant Behavior Checklist (ABC). Research in Developmental Disabilities, 18, 289-298.

Parsons, J. A., May, J. G., Jr, & Menolascino, F. J. (1984). The nature and incidence of mental illness in mentally retarded individuals. In F. J. Menolascino & J. A. Stark (Eds.), Handbook of Mental Illness in the Mentally Retarded. New York: Plenum.

Penn, D. L., Mueser, K. T., Spaulding, W., Hope, D. A., & Reed, D. (1995). Information processing and social competence in chronic schizophrenia. Schizophrenia Bulletin, 21, 269-281.

Perry, N. (1960). Teaching the Mentally Retarded Child. New York: Columbia University Press.

Phillips, I. & Williams, N. (1975). Psychopathology and mental retardation: A study of 100 mentally retarded children: I. Psychopathology. American Journal of Psychiatry, 132, 1265-1271.

Piaget, J. & Inhelder, B. (1947). Diagnosis of mental operations and theory of the intelligence. American Journal of Mental Deficiency, 51, 401-406.

Platt, J. J., & Spivak, G. (1975). The Means Ends Problem Solving Manual. Philadelphia: Dept. Of Mental Health Sciences, Hahnemann Medical College and Hospital.

Powers, M. D., & Handleman, J. S. (1984). Behavioral Assessment of Severe Behavioral Developmental Disabilities. Rockville, MD: Aspen Systems.

Pyles, D. A., Muniz, K. Cade, A., & Silva, R. (1997). A behavioral diagnostic paradigm for integrating behavior-analytic and psychopharmacological interventions for people with a dual diagnosis. Research in Developmental Disabilities, 18, 185-214.

Reiss, S. (1985). The mentally retarded, emotionally disturbed adult. In M. Sigman (Ed.), Children with Emotional Disorders and Developmental Disabilities. (pp. 171-192). New York: Grune & Stratton.

Reiss, S. (1988). *The Reiss Screen Test Manual*. Orland Park, IL: International Diagnostic Systems.

Reiss, S. (1990). Prevalence of dual diagnosis in community-based day programs in the Chicago metropolitan area. American Journal on Mental Retardation, 94, 578-585.

Reiss, S. (1991). Psychopathology and mental retardation: Survey of a developmental disabilities mental health program. Mental Retardation, 20, 128-132.

Reiss, S. (1992). Assessment of a man with a dual diagnosis. Mental Retardation, 30, 1-6.

Reiss, S. (1993). Assessment of psychopathology in persons with mental retardation. In J. L. Matson & R. P. Barrett (Eds.) Psychopathology in the Mentally Retarded (2nd Ed.) (pp. 17-40). Boston: Allyn and Bacon.

Reiss, S. (1994). Issues in defining mental retardation. American Journal on Mental Retardation, 99, 1-7.

Reiss, S., Levitan, G. W., & Szysko, J. (1982). Emotional disturbance and mental retardation: Diagnostic overshadowing. American Journal of Mental Deficiency, 86, 567-574.

Reiss, S. & Szysko, J. (1983). Diagnostic overshadowing and professional experience with mentally retarded persons. American Journal of Mental Deficiency, 87, 396-402.

Rojahn, J. (1986). Self-injurious and stereotypic behavior of non-institutionalized mentally retarded people: Prevalence and classification. American Journal of Mental Deficiency, 91, 268-276.

Rojahn, J. (1992). Behavior Problem Inventory: A prospectus. Unpublished manuscript, Nisonger Center-UAP, Ohio State University, Columbus, OH.

Rojahn, J., Polster, L. M., Mulick, J. A., & Wisniewski, J. J. (1989). Reliability of the Behavior Problems Inventory. Journal of the Multihandicapped Person, 2, 283-293.

Rojahn, J., & Tasse, M. J. (1996). Psychopathology in mental retardation. In J. W. Jacobson & J. A. Mulick (Eds.), Manual of Diagnosis and Professional Practice in Mental Retardation (pp. 147-156). Washington DC: American Psychological Association.

Ruedrich, S. & Menolascino, F. J. (1984). Dual diagnosis of mental retardation and mental illness: An overview. In F. J. Menolascino & J. A. Stark (Eds.), Handbook of Mental Illness in the Mentally Retarded (pp. 45-82). New York: Plenum.

Rush, K. (1997). Social skills in relation to demographic variables in persons with severe and profound mental retardation. Unpublished master's thesis, Louisiana State University, Baton Rouge, LA.

Rutter, M. (1970). Psychiatry. In J. Wortis (Ed.), Mental Retardation: An Annual Review (vol. 3, pp. 186-221). New York: Grune & Stratton.

Rutter, M. & Graham, P. (1979). Epidemiology of psychiatric disorder. In M. Rutter, J. Tizard, & K. Whitmore (Eds.), Education, Health, & Behavior. (pp. 178-201). London: Longman Group.

Rutter, M., Tizard, J., Yule, W., Graham, P. & Whitmore, K. (1976). Research report: Isle of Wight studies, 1964-1974. Psychological Medicine, 6, 313-332.

Rychlak, J. F. & Wade, I. (1963). American usage of the terms "educable" and "trainable" mental retardates. Journal of Mental Subnormality, 16, 70-75.

Scheerenberger, R. C. (1983). A History of Mental Retardation. Baltimore: Brookes Publishing Company.

Senatore, V., Matson, J. L., & Kazdin, A. E. (1984***85?). An inventory to assess psychopathology of mentally retarded adults. American Journal of Mental Deficiency, 89, 459-466.

Sevin, J. (1992). Dual diagnosis in persons with severe or profound mental retardation: A reliability study of the diagnostic assessment for the severely handicapped (DASH). Unpublished

doctoral dissertation, Louisiana State University, Baton Rouge, LA.

Sigafoos, J. (1995). Testing for spontaneous use of requests after sign language training with two severely handicapped adults. Behavioral Interventions, 10, 1-16.

Singh, N. N., Sood, A., Sonenklar, N., & Ellis, C. (1991). Assessment and diagnosis of mental illness in persons with mental retardation: Methods and measures. Behavior Modification, 15, 419-443.

Siperstein, G. N. (1992). Social competence: An important construct in mental retardation. American Journal on Mental Retardation, 96, 3-4.

Smiroldo, B. (1995). The relationship of social skills to psychopathology for individuals with severe and profound mental retardation. Unpublished master's thesis, Louisiana State University, Baton Rouge, LA.

Sovner, D. (1986). Limiting factors in the use of DSM-III criteria with mentally ill/mentally retarded persons. Psychopharmacology Bulletin, 22, 1055- 1059.

Sparrow, S. S., Balla, D. A. & Cicchetti, D. V. (1984). Vineland adaptive behavior scales. Circle Pines, MN: American Guidance Service.

Stewart, C. A. & Singh, N. N. (1995). Enhancing the recognition and production of facial expressions of emotion by children with mental retardation. Research in Developmental Disabilities, 16, 365-382.

Strauss, A. A. (1939). Typology in mental deficiency. Journal of Psycho-Asthenics, 44, 85-90.

Sturmey, P. & Bertman, L. J. (1994). Validity of the Reiss Screen for maladaptive behavior. American Journal on Mental Retardation, 99, 201-206.

Sturmey, P., Burcham, K. J. & Perkins, T. S. (1995). The Reiss Screen for Maladaptive Behaviour: Its reliability and internal

consistencies. Journal of Intellectual Disability Research, 39, 191-195

Sturmey, P., Burcham, J. A. & Shaw, B. (1996). The frequency of Reiss Screen diagnoses in a community sample of adults with mental retardation. Behavioral Interventions, 11, 87-94

Sturmey, P., Jamieson, J., Burcham, J. A., Shaw, B. & Bertram, L. (1996). The factor structure of the Reiss Screen for Maladaptive Behaviors in institutional and community populations. Research in Developmental Disabilities, 17, 285-291.

Sturmey, P. & Ley, T. (1990). The Psychopathology Instrument for Mentally Retarded Adults: Internal consistency and relationship to behavior problems. British Journal of Psychiatry, 156, 428-430.

Suhareva, G. E. (1972). The problem of classification of mental retardation. American Journal of Psychiatry, 128 (supplement), 29-34.

Sukov, M. (1939). Contribution to the concept of mental deficiency. Journal of Psycho-Asthenics, 44, 184-188.

Swiezy, N. B., Matson, J. L., Kirkpatrick-Sanchez, S. & Williams, D. E. (1995). A criterion validity study of the schizophrenia subscale of the psychopathology instrument for mentally retarded adults (PIMRA). Research in Developmental Disabilities, 16, 275-280.

Szymanski, L. S. (1977). Psychiatric diagnostic evaluation of mentally retarded individuals. Journal of the American Academy of Child Psychiatry, 16, 67-87.

Tarjan, G. Eisenberg, L. (1972). Some thoughts on the classification of mental retardation in the United States of America. American Journal of Psychiatry, 128 (supplement), 14-18.

Tarjan, G., Tizard, J., Rutter, M., Begab, M., Brooke, E. M., De La Cruz, F., Lin, T.-Y., Montenegro, H., Strotzka, H., & Sartorius, N. (1972). Classification and mental retardation: Issues arising in the fifth WHO seminar on psychiatric diagnosis,

classification, and statistics. American Journal of Psychiatry, 128 (supplement), 34-45.

Taylor, S. J., & Harris, S. L. (1995). Teaching children with autism to seek information: Acquisition of novel information and generalization of responding. Journal of Applied Behavior Analysis, 28, 3-14.

Tizard, J. (1972). A note on the international statistical classification of mental retardation. American Journal of Psychiatry, 128 (supplement), 25-28.

Tredgold, R. F. (1947). Mental Deficiency (7th Ed.). Baltimore: The Williams and Wilkins Co.

Tredgold, R. F. & Soddy, K. (1963). Tredgold's Textbook of Mental Deficiency (10th Ed.). Baltimore: The Williams and Wilkins Co.

Trent, J. W., Jr. (1994). Inventing the Feeble Mind. Berkeley: University of California Press.

Trower, P. (1986). Social skills training and social anxiety. In C. Hollin & P. Trower (Eds.) Handbook of Social Skills Training (Vol. 2, pp. 39-65). New York: Pergamon Press.

Turner, T. H. (1989). Schizophrenia and mental handicap: An historical review, with implications for further research. Psychological Medicine, 19, 301-314.

Twitmyer, E. B. (1927). The psychologist's approach to the problem of mental deficiency. Journal of Psycho-Asthenics, 32, 31-40.

Watson, J. E., Aman, M. G. & Singh, N. N. (1988). The psychopathology instrument for mentally retarded adults: Psychometric characteristics, factor structure, and relationship to subject characteristics. Research in Developmental Disabilities, 9, 277-290.

Williams, J. M. G. (1986). Social skills training and depression. In C. Hollin & P. Trower (Eds.) Handbook of Social Skills Training (Vol. 2, pp. 91-110). New York: Pergamon Press.

Wilmarth, A. W. (1906). To whom may the term, feeble-minded, be applied? Journal of Psycho-Asthenics, 11, 45-54.

Wolf, M. M. (1925). The relation of feeble-mindedness to education, citizenship, and culture. Journal of Psycho-Asthenics, 30, 124-135.

Wolfensburger, W. (1980). A brief overview of the principle of normalization. In R. J. Flynn & K. G. Nitch (Eds.), Normalization, Social Integration, and Community Services. Baltimore: University Press.

World Health Organization (WHO; 1972). Fifth WHO seminar on psychiatric diagnosis, classification, and statistics. American Journal of Psychiatry, 128 (supplement), 3-14.

Wortis, J. (1972). Comments on the ICD classification of mental retardation. American Journal of Psychiatry, 128 (supplement), 21-24.

Yepsen, L. N. (1941). Defining mental deficiency. American Journal of Mental Deficiency, 46, 200-205.

VITA

Stephen Joseph Anderson hails from Knoxville, Tennessee. Born in the fifties, he remembers when nobody locked their doors, as well as shows worth watching on black and white television. He earned his bachelor of arts degree from the University of Tennessee in 1980. Following a two-year stint with the General Electric Company, he entered a period of traveling and seeking of deeper truths. He subsequently held numerous jobs as a salesman, sales trainer, and stand-up comic. Instead of choosing the traditional faster car/younger lovers mid-life crisis, Stephen opted to enroll in Louisiana State University in 1991. Aided by a Board of Regents fellowship, he earned his master of arts degree in 1994. He is currently a candidate for the degree of Doctor of Philosophy in Psychology at L. S. U. He is really glad to be getting out of school.


DOCTORAL EXAMINATION AND DISSERTATION REPORT

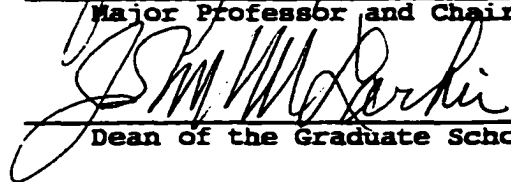
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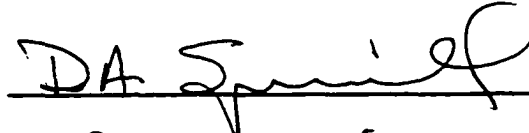
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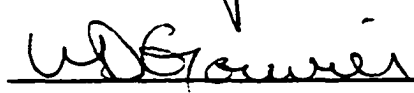


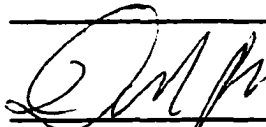
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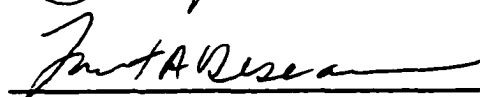
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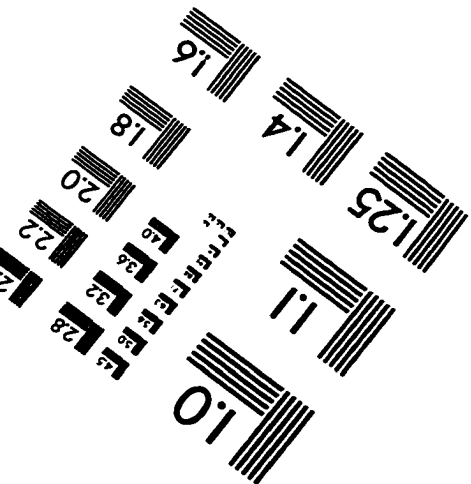
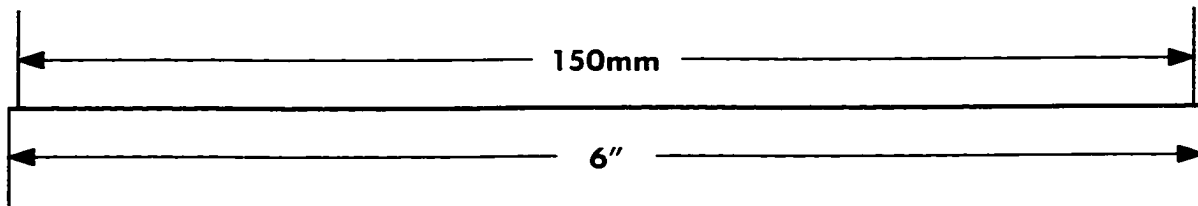
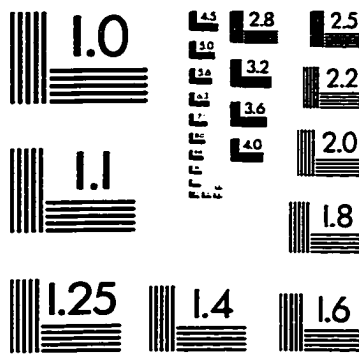
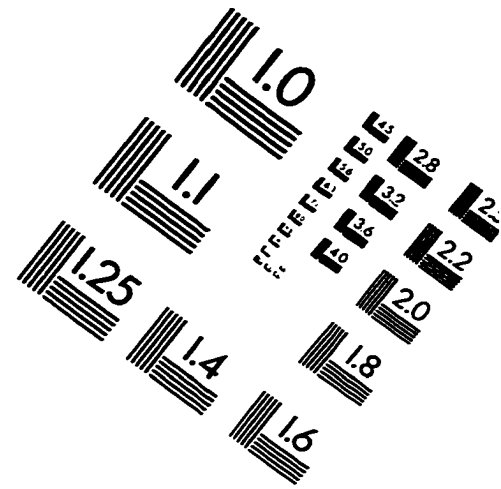
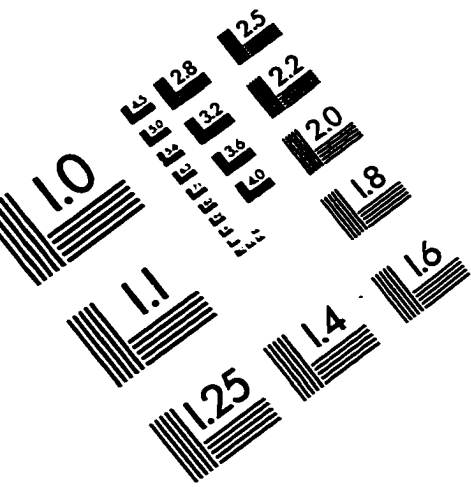




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